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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of:	(	
BILL L. DAVIS and JESSE S. WILLIAMSON	(	
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For Reissue of U.S. Patent 5,630,393	(	Group Art Unit:
Issued May 20, 1997	(	2854
Serial No. 08/515,097	(	
	(	
Filing Date: May 20, 1999	(	Examiner:
	(	S. Funk
Serial No: 09/315,796 part of paper # 28	(	
	(	
For: COMBINED LITHOGRAPHIC/	(	
FLEXOGRAPHIC PRINTING	(	
APPARATUS AND PROCESS	(	

SUPPLEMENTAL DECLARATION OF RAYMOND J. PRINCE

I, Raymond J. Prince, under penalties of perjury declare and state the following:

1. I am the same Raymond J. Prince who made a declaration in May 1999 submitted with the original application for reissue, and reaffirm the statements made therein.

2. I have been asked to review once again U. S. Patent 5,630,363, specifically in reference to an office action in reissue application Serial No. 09/315,796, as well as European Patent Application EP 741 025 - A2 cited in that office action, and give my opinion as to its teachings to one of ordinary skill in the printing arts and respond to specific questions concerning (1) the teaching of the sentence of col.1. line 54-55 :"Many sheetfed presses can perfect (print both sides of the paper) in one pass through the press." as that sentence impacts the scope of the invention taught to the printing artisan, and (2) the correct interpretation of the term "over" in the specification and claims. In addition I have been asked to explain the meaning of the statement "continuous in-line process" and the printing terms "perfecting", "perfector", "perfecting press", "overcoating", " on top of", and "overprinting". Finally, I have been asked to give my opinion concerning the adequacy of each of the '383 patent claims being reissued and the impact as to patentability of EP 741 025 - A2 concerning claims 1 - 87 sought to be reissued as originally filed. This document is intended to supplement my first Declaration of May 1999.

3. I have received a portion of an office action in the captioned application and understandings dated February 8, 2000 concerning a rejection of claims 44 - 87 under 35 U.S.C. section 251 as allegedly lacking support in the specification, attached hereto as Exhibit A. I have also reviewed reissue applicants originally filed reissue claims as filed 1-87, Exhibit B. **For the reasons that follow in paragraphs 4 -10 below, I disagree with the examiner's conclusions in Exhibit A, and conclude claims 1-87 are supported by the specification of the '363 patent being reissued.**

4. The terminology of the printing industry has gone through many changes in the past 500 years, it can get a bit complex to the lay person with words having many meanings depending on how they are used.

(A.) "Perfecting" means to print on both sides of the sheet or web in on pass through the press. Most web presses sold today and in the last 20 years are perfecting presses. These presses operate using a blanket to blanket cylinder approach. Therefore every time the word web is used in '363 patent it means a "perfecting process".

(B.) Press manufacturers will refer to a "perfecting press" by the number of colors, and where the perfecting unit is. A 6-color press with the perfecting unit between units 2 and 3 would be referred to as a "2 over 4 unit". It can print 2 colors and turn the sheet and print 4 more colors. One can purchase 1 over 5 presses as well as 2 over 2 presses and just about every combination one can think of.

(C.) Another way of expressing the above (B.) is to describe a 6- color press with a "perfecting" unit between units 2 and 3 would be to state is as a "2/4 press".

5. The term " single in-line continuous printing process" in the '363 patent also refers to a "perfecting press". A prime example is a web offset press, which prints on both sides of the web of paper, that begins with a roll of paper and ends with a folded signature of final product. It may also refer in a sheetfed plant to a perfecting press in which unprinted paper is fed into the press and a sheet printed on both sides is delivered. A press that cannot print on both sides in one pass is not a "single in-line continuous printing process".

6. Based on the above teachings of "perfector", together with the teachings of printing "over" and "single in-line continuous printing process", claims 44 -87 of the '363 reissue application are based on a perfecting press as described in '363, and are well supported by the teachings of the '363 patent.

7. The term "overcoating" can be used with a press that does "perfect" as well as with a press that does not "perfect". The term means to apply a material/coating over a previously applied material. Printing "on top of" is synonymous with "overprinting" -- printing on the same side of -- which is a subset of printing "over" in which the second or downstream unit can also print on the reverse side of the substrate.

8. In column 4 lines, 29 and 43 of the '363 patent, reference is made to printing an image "over" a previously printed image. In column 4 line 38 of the '363 patent overcoating can apply to a perfecting press or a non- perfecting press, the preferred method would be to accomplish this on one pass through the press (a in-line continuous printing process), a perfector. Generally when the term "overcoating" is used in the art, it is used to describe the use of a final coating of a gloss, dull or matt water based or UV coating to improve finish (visual) and or rub resistance.

9 In reviewing column 7, lines 52-60 of the '363 patent, the language "on top of" is only describing one way printing works, using reissue applicants process. This is the same on a "perfecting" or non-perfecting press.

10. In independent '363 claims 44,53,55,58,60,72,82 and 86 use the terminology "thin controlled layers". This terminology is merely referring to ink or coatings, i.e. images. One skilled in the art would know they are synonymous.

11. I have also been asked to review the process aspects of EP 741,025A2 ('025") in conjunction, and rejections, of claims 1 - 87 based on anticipation (35 U.S.C sec 102) and obviousness (35 U.S.C. sec 103) by the examiner, in the same office action, the pertinent portion attached hereto as Exhibit C. I understand that the examiner believes the invention of reissue claims 1-6, 9-20, 22-25, and 28-38 are taught by the '025, i.e. "anticapated", and the remaining claims "obvious". I understand a publication is anticipatory if it puts one of average skill in the art in possession of the claimed intention at the time of (filing date) of the claimed invention. I understand that a referral make a claims invention obvious if the claimed invention as a whole was obvious to perform or to do as of the filing date of the claimed invention. **I strongly disagree with the examiner and I found claims 1 - 87 cannot be anticipated or made obvious by the '025 even if it is prior art (which I cannot see how, the '025 was published in late 1996 and the filing date of the '363 is in 1995).** In examining EP 0 741 025 A2, I conclude:

(1.) There is no reference to "perfecting" in the '025;

(2.) The '025 application refers to "overprinting" which is not "perfecting", and which is not synonymous with "printing over";

(3.) There is no mention of a "single in-line continuous printing process" in the '025;

(4.) The '025 application expounds the cantilever approach and its design rather than a process-- the cantilever design has been in use throughout history, and I find it hard to believe that valid cantilevered apparatus claim's for the particular cantilever disclosed could be an issue in any industrial country;

(5.) Cantilevered coaters, as described in the '025 and variations thereof, was traditionally placed at the end of a presses as of 1995, not between units;

(6.) The '025 application would not even as of May 1995 adequately describe or enable one in the art to teach the '363 process. It does not adequately teach the '363 process, give a background as to the problems in the art, i.e. the problems with the WIMS patent listed below, nor does it provide the process. Further, benefits as does the'363 patent, it therefore, in my opinion, does not place the artisan in 1995 in possession of the '363 invention. Specifically, while column 2 lines 40-45 of the EP 0 741 025 A2 suggests that a flexographic unit could possibly be placed ahead of a lithographic unit, the application does not spell out any benefits -- there is no appreciation shown for doing flexography first--, in fact, the first part of col. 2 of EP 741 025 A2 specifically indicates that the cantilevered device can be put at the <u>last</u> unit, as it was done traditionally, or between units, which has a dramatically different effect. Absent (a) being taught the benefits of performing flexography first (see, e.g., col. 4, lines10 - 20 and col. 6, line 37 - col. 8, line 27 in the Davis et al.'363), and the problems those benefits solved (see columns 3, and 4, lines 1-9 of the '363 and (b) knowing about the reissue applicants assignees prior "WIMS" patent U.S. 5,370,976 (incorporated by reference in the '363 patent at col.8, line 11), the artisan would <u>not</u> have had any motivation to try flexography prior to lithography in 1995 -- there is no reasonable expectation of reissue applicants' success. Moving a rack-back up front in the lithographic press in 1995 was an expensive undertaking. Moreover, in 1995 flexography was regulated generally to lower quality work in the industry and if combined with lithography it was placed at the end of the press to apply coatings and in rare instances metallic pigment in suspension in a waterbased coating. The flexography units in commercial use could not be physically placed between units due to size, without expensive modification. Further, the so-called "rack backs" available in 1994 or early 1995 for flexographic use were designed strictly for end of press installation. In addition there was

no technical reason indicated in the '025 application to place one or more flexo units between or ahead of lithographic units due to quality. The WIMS '976 patent is not mentioned, let alone incorporated by reference in the '025. Recently there has been great progress in the flexographic process and in particular the quality of plates and inks as well as coatings. Today flexography is capable of very high quality work. Many wine labels as well as high quality flexible packaging for example potato chip bags are now done by the flexographic process. This quality was not generally available in mid 1995; and

(7.) About 90% of the '025 patent publication is devoted to the teaching of the design of the cantilevered device, not a process. The teaching of the process is inadequate. The remainder of the publication does not instruct unequivocally the artisan how to perform reissue applicants process or provide benefits. It throws out to the reader is an opportunity to try it, without reason or motivation. Absent a teaching of reissue applicants found benefits and an incorporation of WIMS U.S. Pat. 5,370,976, and interpretation of the '025 patent as teaching claims 1-6, 9-20, 22-25 or 28-38, it is an exercise in sheer hindsight -- it is reading the '025 patent not as one in the art would have read it on May 4, 1995 (the '025 priority date), but in 1997 or later with the '363 in front of the printer. The '025 does not teach the benefits of the '363 process -- bizarre in my opion in 1995 unless someone knew about it. It does not mandate using flexography first -- a fatal shortcoming in view of the fact it does not mention, let alone incorporate WIMS U.S. Pat. 5,370,976. 90% of the '025 teaching is about a cantilevered apparatus, the type of which was already in the art. No mention is made of the use of halftones. There is inadequate teaching of the use of blanket cylinders. I disagree that the teaching of claims 11-20 or 22-25 or 28 exists in the '025 in hindsight, ignoring the shortcoming of lack of incorporation of WIMS '976 and the outstanding results in reissue applicants process. In my opinion claims 7-9, 11-28 and 39-87 are clearly not taught, even in hindsight. Most importantly because of the failure of the '025 applicants to teach the benefits of the '363 patent and because of the failure to incorporate by reference WIMS '976, one skilled in the printing art is not in possession of even broad claims 1-6, 10, or 29-38 as of May, 1995. Such a reading would be pure hindsight.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application of any reissue thereon.

Raymond J. Prince

3/15/2000

Date

Supplemental Prince Exhibit A

Claims 42 - 87 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

First, in each of independent claims 44, 53, 55, 58, 60, 72, 80 - 82, and 85 - 87 and dependent claims 42, 43, and 49 the recitations of printing on "both sides, opposite sides, or the reverse side" of the substrate is not supported by the original disclosure. Other than the brief mention of perfector printing in column 2 lines 54 - 55 with respect to prior art sheet fed presses there is no other discussion of perfector printing or printing on opposite, both, or the reverse side of the substrate in the original disclosure. Furthermore, the terms "over" and "on top of" are used interchangeably in the specification and in no instance is it implied that sometimes the

term "over" refers to perfector printing. Specifically, the meaning of the term "over" in context in column 4 lines 29 and 43 (applicant's declaration incorrectly refers to column 5) is no different than the context meaning of "over" in column 4 line 38 (again the declaration incorrectly refers to column 5) and column 6 line 3. Applicant's apparent argument that the use of this term with "overcoating" in the latter two instances clearly implies on the same side of the substrate but the first two instances of "over" with reference to "color images" implies perfector printing is without merit and self serving. Note original claims 29 and 34 in the parent application and column 7 lines 52 - 60 which state that additional "colored ink images" are printed "on top of" the previously printed image, thus, referring to printing on the same side of the substrate which contradicts applicant's assertion. Additionally, the use of the term "over" does not have any connotation of perfector printing in the art without being first preceded by "turning" or "flipping" and only with specific reference to the substrate. Lastly, the Declaration of Raymond J. Prince provides no objective evidence that the term "over" can refer to perfector printing and none of the exhibits provided in this declaration use the term "over" with respect to perfector printing.

Second, in independent claims 44, 53, 55, 58, 60, 72, 82, and 86 the terminology of applying "thin, controlled layers" to the substrate has no support in the original disclosure and, furthermore, has no clear scope or meaning.

Claims 42 - 87 are rejected under 35 U.S.C. 251 as being based upon new matter added to the patent for which reissue is sought.

Supplemental Prince Exhibit B

Reissue of U. S. Patent No. 5,630,363

CLAIMS

Note: Bracketed material in the following claims has been deleted from U. S. Patent 5,630,363 as issued; underlined materials, including new claims 42-84 has been added.

1. Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate with a slurry containing an encapsulated essence using the flexographic process;

at least one of said successive printing stations being a lithographic printing station; and

an overcoating applied over the liquid vehicle image on the printed substrate at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.

2. Apparatus as in claim 1 wherein said overcoating is an aqueous overcoating.

3. Apparatus as in claim 1 wherein said overcoating is an ultraviolet ink overcoating.

4. Apparatus as in claim 1 wherein:

said substrate is a paper sheet; and

said apparatus includes a sheet feeder.

5. Apparatus as in claim 1 wherein:

said substrate is a web; and

said apparatus includes a web feeder.

6. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle image using the flexographic process to form a metallic coating;

a suspended metallic material being included in said aqueous-based vehicle image; and

at least one of the successive printing stations comprising an offset lithographic printing station printing a color image over the aqueous-based vehicle image using the offset lithographic process in said continuous in-line process.

7. Apparatus as in claim 6 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

8. Apparatus as in claim 6 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

9. Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression

cylinder for printing said flexographic plate image on said substrate; and

an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

10. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and

at least one of the successive printing stations comprising an offset lithographic printing station for printing a second color image over the first color image using the offset lithographic process in said continuous in-line process.

11. Apparatus as in claim 10 further including:

said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;

a flexographic plate on said plate cylinder;

an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and

said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

12. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

at least two successive ones of said printing stations being flexography stations and comprising:

(1) a supply of liquid coating;

(2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

(3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;

(4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on said substrate, said at least two flexography stations printing the same liquid coating image in sequence and in superimposed relationship; and

at least one offset lithographic printing station for receiving said substrate and printing over said liquid coating image.

13. Apparatus as in claim 12 wherein said liquid coating image printed on said substrate is a white color ink.

14. Apparatus as in claim 12 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

15. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

a blanket cylinder at at least a first one of said flexographic printing stations;

flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

16. Apparatus as in claim 15 further comprising:

a plate cylinder at said at least first one of said flexographic stations;

a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and

said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

17. Apparatus for a combined lithographic/ flexographic printing process for printing a multicolored image comprising:

a plurality of successive printing stations for printing color on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

(1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an

image thereon for transferring a flexographic color ink image to said blanket cylinder;

(2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image.

18. Apparatus as in claim 17 wherein said additional colored ink images are formed with lithographic inks.

19. Apparatus as in claim 17 wherein said colored ink images are formed with waterless inks.

20. Apparatus as in claim 17 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

21. Apparatus as in claim 17 further including halftone printing plates for printing said colored ink images.

22. Apparatus as in claim 17 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

23. Apparatus as in claim 17 wherein said printing apparatus includes a sheet-fed press.

24. Apparatus as in claim 17 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

25. Apparatus as in claim 17 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

26. Apparatus as in claim 25 wherein said suspended particles are uniform in size.

27. Apparatus as in claim 25 wherein said suspended particles are nonuniform in size.

28. Apparatus as in claim 25 wherein said suspended particles are metallic particles.

29. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for printing colored ink images on a substrate;

printing a flexographic ink image on said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing colored ink images [on top of] over said flexographic ink image at at least one of said subsequent lithographic printing stations with an offset lithographic process.

30. A method as in claim 29 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

31. A method as in claim 29 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

32. A method as in claim 29 wherein said colored inks forming said colored ink images are waterless.

33. A method as in claim 29 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

34. A method as in claim 29 further including the steps of:

printing a slurry on said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an overcoating [over] on top of said slurry at a subsequent printing station in said in-line process to protect said essence.

35. A method as in claim 34 further including the step of printing an aqueous-based coating over said slurry.

36. A method as in claim 34 further including the step of printing an ultraviolet coating over said slurry.

37. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying a flexographic ink to a blanket cylinder in a pattern with a coating head at a first flexographic printing station;

transferring said pattern of flexographic ink from said blanket cylinder to the substrate; and

printing a waterless ink pattern over said flexographic ink pattern on said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

38. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle image having suspended particles therein on a substrate at a first flexographic printing station;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional colored ink images on said printed substrate over said aqueous-based vehicle image in an offset lithographic process at said at least one additional printing station in said in-line process.

39. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for printing liquid vehicle images on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as said liquid vehicle to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on said substrate; and

(6) printing an ink pattern over said flexographic ink image using an offset lithographic process.

40. A method as in claim 39 further including the step of additionally printing colored ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

41. A method as in claim 40 wherein said liquid ink is an opaque white color.

42. The apparatus of any of claims 1, 6, 10, 12, 15 and 17, wherein the substrate is printed on both sides in one pass during the continuous in-line process.

43. The method of any of claims 29, 37, 38 or 39 wherein the substrate is printed on both sides in one pass during the continuous in-line process.

44. Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of thin, controlled layers on one side of a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate using a flexographic process; and

at least one of said successive printing stations being a lithographic printing station;

whereby said substrate is printed on top of or on the opposite side of that previously printed at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.

45. Apparatus as in claim 44 wherein at least one of said thin, controlled layers at the flexographic station is a coating material.

46. Apparatus as in claim 44 wherein at least one of said thin, controlled layers at one of the lithographic stations is an ink.

47. Apparatus as in claim 44 wherein:

said substrate is a paper sheet; and

said apparatus includes a sheet feeder.

48. Apparatus as in claim 44 wherein:

said substrate is a web; and

said apparatus includes a web feeder.

49. The apparatus of claim 44 for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle on one side of the substrate using the flexographic process to form a metallic coating image;

a suspended metallic material being included in said aqueous-based vehicle; and

at least one of the successive printing stations comprising an offset lithographic printing station printing a color image on top of the aqueous-based vehicle or on the opposite side to that previously printed using the offset lithographic process in said continuous in-line process.

50. Apparatus as in claim 49 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

51. Apparatus as in claim 49 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

52. Apparatus as in claim 49 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression cylinder for printing said flexographic plate image on said substrate; and

an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

53. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and

at least one of the other successive printing stations comprising an offset lithographic printing station for printing a second color image on the reverse side of the substrate of the first color image using the offset lithographic process in said continuous in-line process.

54. Apparatus as in claim 53 further including:

said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;

a flexographic plate on said plate cylinder;

an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and

said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

55. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process;

at least one of said printing stations being flexographic stations and comprising:

(1) a supply of liquid coating;

(2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

(3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;

(4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on one side of said substrate; and

at least one offset lithographic printing station for receiving said substrate and printing on top of or on the opposite side to that previously printed.

56. Apparatus as in claim 55 wherein said liquid coating image printed on said substrate is a white color ink.

57. Apparatus as in claim 56 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

58. Apparatus for a combined lithographic/ flexographic printing process comprising:

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process, said printing stations including both lithographic and at least two flexographic printing stations;

a blanket cylinder at at least a first one of said flexographic printing stations;

flexographic ink-providing means at the other of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image on one side of a substrate;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image or the opposite side to that previously printed using offset lithography.

59. Apparatus as in claim 58 further comprising:

a plate cylinder at said at least first one of said flexographic stations;

a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and

said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

60. Apparatus for a combined lithographic/ flexographic printing process for printing a multicolored image comprising:

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

(1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;

(2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to one side of said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image or on the opposite side to that that previously printed.

61. Apparatus as in claim 60 wherein said additional colored ink images are formed with lithographic inks.

62. Apparatus as in claim 60 wherein said colored ink images are formed with waterless inks.

63. Apparatus as in claim 60 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

64. Apparatus as in claim 60 further including halftone printing plates for printing said colored ink images.

65. Apparatus as in claim 60 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

66. Apparatus as in claim 60 wherein said printing apparatus includes a sheet-fed press.

67. Apparatus as in claim 60 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

68. Apparatus as in claim 60 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

69. Apparatus as in claim 68 wherein said suspended particles are uniform in size.

70. Apparatus as in claim 68 wherein said suspended particles are nonuniform in size.

71. Apparatus as in claim 68 wherein said suspended particles are metallic particles.

72. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/ flexographic printing stations for depositing a series of thin, controlled layers on a substrate;

printing an image as one of said thin controlled layers on one side of said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing an image on the reverse side of said substrate having said flexographic ink image, at at least one of said other subsequent lithographic printing stations with an offset lithographic process in the continuous in-line process.

73. A method as in claim 72 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

74. A method as in claim 72 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

75. A method as in claim 72 wherein said colored inks forming said colored ink images are waterless.

76. A method as in claim 72 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

77. A method as in claim 72 further including the steps of:

printing a slurry on one side of said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an ink on the reverse side of said substrate at a subsequent printing station in said in-line process.

78. A method as in claim 77urther including the step of printing an aqueous-based coating over said slurry.

79. A method as in claim 77 further including the step of printing an ultraviolet coating over said slurry.

80. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying an ink or coating to a blanket cylinder in a pattern with a coating head at a flexographic printing station;

transferring said pattern of ink or coating from said blanket cylinder to one side of the substrate; and

printing a waterless ink pattern on the reverse side of said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

81. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle having suspended particles therein on one side of a substrate at a flexographic printing station to form an image;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional images on the reverse side of said printed substrate in an offset lithographic process at said at least one additional printing station in said in-line process.

82. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as one of said thin controlled layers to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to one side of a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on the one side of said substrate; and

(6) printing an ink pattern on the reverse side of said substrate using an offset lithographic process.

83. A method as in claim 82 further including the step of additionally printing ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

84. A method as in claim 83 wherein said liquid ink is an opaque white color.

85. A method of combining offset lithography and flexography using a plurality of successive printing stations in a continuous in-line process comprising:

(1) printing an image at one or more of said printing stations on a substrate using an offset lithographic process;

(2) transferring said image printed substrate to an additional printing station and printing at said additional printing station a coating on all or part of said image on said substrate;

(3) transferring said substrate to one or more additional printing stations for printing the reverse side of the said substrate; and

(4) printing an image on said reverse side of said substrate at one of such one or more printing stations using an offset lithographic process in the continuous in-line process.

86. Apparatus for a combined offset lithographic and flexographic printing process comprising:

(1) a substrate;

(2) a plurality of successive printing stations for depositing a series of thin layers of materials selected from a group consisting of lithographic and flexographic inks, coatings and slurries on one or both sides of a substrate in a continuous in-line process;

(3) at least one of said stations comprising a flexographic printing station for printing one of said flexographic materials on said substrate using a flexographic process;

(4) at least one of said successive printing stations being an offset lithographic printing station whereby said offset lithographic printing station is used to deposit one of said lithographic materials on either side of the said substrate in the continuous in-line process;

87. Apparatus for a combined offset lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing images on a substrate in a continuous in-line process, said printing stations including both offset lithographic and flexographic printing stations for depositing lithographic and flexographic inks, coatings and slurries on said substrate, whereby said lithographic and flexographic inks, coatings or slurries may be printed successively on one or both sides of said substrate in the continuous in-line process.

Supplemental Prince Exhibit C

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 - 6, 9 - 20, 22 - 25, and 28 - 38 are rejected under 35 U.S.C. 102(e) as being anticipated by DeMoore et al. (US 5,960,713). DeMoore et al. is ultimately a CIP of S.N. 08/435,798 which has a filing date of 5/4/95. While this patent is a CIP of the earlier application, and could contain subject matter not disclosed in that application, reference can presently be made to EP 741,025 which claims direct priority from S.N. 08/435,798. All references to Demoore et al. will be made to EP 741,025.

DeMoore et al. teach a first flexographic station (22, 110) for printing either colored inks, white ink, metallic particles, an encapsulated essence, or aqueous or UV coatings on a sheet or web (col. 2 lines 40-45, col. 3 lines 17-21, col. 4 lines 32-35, col. 9 line 47 - col. 10 line 18) and at least one successive lithographic station (24-28) for printing colored inks, aqueous, or UV coatings (col. 4 lines 32-50 and col. 10 lines 19-27). Applicant should carefully

review the entire document of DeMoore et al. With respect to the flexographic plate, plate cylinder, blanket cylinder, and anilox roller see column 10 lines 4 - 11. With respect to successive flexographic stations see column 6 lines 21 - 27. With respect to the air dryer see column 9 lines 1 - 10. With respect to the waterless inks see column 3 lines 21 - 30 and column 10 lines 19 - 27. With respect to claim 22 the plates would inherently be either solid or halftone.

Claims 7, 8, 21, 26, 27, and 39 - 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeMoore et al. With respect to the size of the metallic particles it would have been obvious to one of ordinary skill in the art to use uniform sized particles to achieve a uniform, flat printed image or non-uniform sized particles to achieve a desired textured appearance. With respect to claim 21 it is widely conventional in the art to make halftone lithographic printing plates to achieve superior image appearance. With respect to claim 39 it would have been obvious to one of ordinary skill in the art to overprint the same image with the same color ink to simply achieve a denser or more opaque color. With respect to the added claims, insofar as they are adequately supported by the original disclosure, DeMoore et al. teach in column 3 lines 17 - 19 that the substrate may be printed on either side. It would have been obvious to one of ordinary skill in the art to selectively print on both sides of the substrate so as to achieve desirable perfector printing.

to comply with a provision which "is both reasonable and of material significance to the franchise relationship" pursuant to § 2802(b)(2)(A), which justified nonrenewal. Moreover, plaintiff's failure to maintain the premises in a clean manner is also a proper ground for nonrenewal under § 2802(b)(3)(C). Therefore, defendant can properly end the franchise relationship with the plaintiff.

PENNWALT CORPORATION, Plaintiff,

v.

AKZONA INC. and Armak Co., Defendants.

Civ. A. No. 79-157.

United States District Court, D. Delaware.

Aug. 22, 1983.

Plaintiff brought declaratory judgment action to declare invalid and unenforceable patent it had already infringed. The District Court, Latchum, Chief Judge, held that: (1) patent was invalid as "in public use"; (2) parties' product development agreement afforded no basis for holding plaintiff liable for damages for breach of contract; (3) plaintiff was not liable to defendant for breach of contract implied from unauthorized use of its trade secret or unauthorized use of its trade secret unjustly enriching plaintiff; and (4) plaintiff was not entitled to attorney fees under statute providing for such fees in "exceptional case."

Ordered accordingly.

1. Patents ⇐90(1)

To come within purview of statute allowing later-filed patent application to claim benefit of one or more earlier filed applications, later application must, among other things, disclose same invention as has previously been disclosed in each prior application, and each application must comply with statute governing specification. 35 U.S.C.A. §§ 112, 120.

2. Patents ⇐90(1)

Claims of patent were not entitled to filing date of grandparent application, because they depend on entirely new matter added by subsequent continuation-in-part application, and because for purposes of statute governing specification, the prior application lacked an enabling disclosure and failed to set forth best mode. 35 U.S.C.A. §§ 112, 120.

3. Patents ⇐99

Mere reference to another application, patent or publication, is not an incorporation of anything therein into application containing such reference for purpose of disclosure required by patent statute governing specification. 35 U.S.C.A. § 112.

4. Patents ⇐76, 80

Plaintiff's sales of its trademarked agricultural insecticide suspended in xanthan gum, in accordance with claims of patent pertaining to an insecticidal composition, were made more than one year prior to filing date of patent application, and such public use and sales were not justified under "experimental use" doctrine, notwithstanding that sales were made under temporary Environmental Protection Agency experimental use permit; therefore, those sales constituted an absolute statutory bar to patentability under statute providing that no patent will be granted where invention was in public use or on sale one year prior to date of application for patent. 35 U.S.C.A. § 102(b).

5. Patents ⇐80

Patent No. 4,196,292, pertaining to an insecticidal composition consisting essentially of a polymer-encapsulated insecticide suspended in an aqueous dispersion of xanthan gum, was invalid under statutory subsection providing that a person shall be

entitled to a patent unless, inter alia, invention was in public use or on sale in United States more than one year prior to date of application for patent. 35 U.S.C.A. § 102(b).

6. Patents ⇐80

Single unrestricted public use or sale brings into operation bar to patentability set forth in statute providing that no patent will be granted where invention was in public use or on sale in United States more than one year prior to date of patent application. 35 U.S.C.A. § 102(b).

7. Patents ⇐75, 76

Bar to patentability set forth in statute providing that a person shall be entitled to a patent unless, inter alia, invention was in public use or on sale in United States more than one year prior to date of application for patent does not require invention to be placed in public use or on sale by patentee because such use or sale by third party, with or without consent of inventor, is sufficient to invalidate any patent subsequently obtained if use or sale occurred more than one year prior to issue. 35 U.S.C.A. § 102(b).

8. Patents ⇐75, 76

"Experimental use" doctrine, developed under patent law, which is an exception to bar to patentability set forth in statute providing that no patent will issue where invention was in public use or on sale in United States more than one year prior to date of patent application, is not coextensive with and does not have same meaning as "experimental use" of pesticides conducted under an Environmental Protection Agency temporary permit issued under environmental protection laws. 35 U.S.C.A. § 102(b).

9. Patents ⇐75, 76

Bar to patentability in statute providing that a person shall be entitled to patent unless invention was in public use or on sale in United States more than one year prior to date of application for patent, can be extended for reasonable period if experimentation is undertaken to demonstrate utility of claimed invention and its lack of need for further improvement. 35 U.S.C.A. § 102(b).

10. Patents ⇐75, 76

For purposes of bar to patentability in statute providing that no patent will be granted where invention was in public use or on sale in United States more than one year prior to date of application for patent, and exception to that bar for "experimental use," use or sale labeled "experimental" by government regulatory agency is not necessarily "experimental" under patent laws. 35 U.S.C.A. § 102(b).

11. Patents ⇐75

Experimentation to perfect nonclaimed features of an invention does not fall within experimental-use exception to bar to patentability in statute providing that a person shall be entitled to a patent unless, inter alia, invention was in public use or on sale in United States more than one year prior to date of application for patent. 35 U.S.C.A. § 102(b).

12. Patents ⇐81

For purposes of experimental-use exception to bar to patentability set forth in statute providing that no patent will issue where invention was in public use or on sale in United States more than one year prior to date of application for patent, absence of any restriction by patentee on uses of patented invention is indicative of nonexperimental purpose. 35 U.S.C.A. § 102(b).

13. Patents ⇐81

To avoid bar to patentability set forth in statute providing that a person shall be entitled to a patent unless invention was in public use or on sale in United States more than one year prior to date of patent application, inventor must show that transferee lacked authority to use invention or exploit its commercial value, but where an inventor sells or delivers invention to another without any enforceable obligation for other to hold invention for experimental purposes only, unrestricted sale or delivery will invalidate the patent. 35 U.S.C.A. § 102(b).

14. Patents ⇐81

For purposes of experimental-use exception to bar to patentability in statute providing that no patent will be granted where invention was in public use or on sale in United States more than one year prior to date of application for patent, a factor that is indicative of nonexperimental purpose is failure to require test reports. 35 U.S.C.A. § 102(b).

15. Patents ⇐75, 76

Where person has authority to use invention commercially or sell to others without any duty to experiment further, there is a "sale" within meaning of statute providing that person shall be entitled to patent unless invention was in public use or on sale in United States more than one year prior to date of application for patent, and experimental-use exception does not apply. 35 U.S.C.A. § 102(b).

16. Patents ⇐75

Market testing and product introduction are not "experimental uses" for purposes of experimental-use exception to bar to patentability set forth in statute providing that a person shall be entitled to a patent unless invention was in public use or on sale in United States more than one year prior to date of application for patent. 35 U.S.C.A. § 102(b).

17. Patents ⇐75, 76

Experimental-use exception to bar to patentability in statute providing that no patent will issue where invention was in public use or on sale in United States more than one year prior to date of application for patent, applies to experiments of inventor or persons under his control, not to third parties. 35 U.S.C.A. § 102(b).

18. Contracts ⇐170(1)

Faced with contradictory testimony, courts turn, as an important aid to construction of contract, to examine practical construction placed on agreement by parties themselves.

19. Contracts ⇐201

Xanthan gum was not within scope of parties' product development agreement, and therefore defendant's submission of that material to plaintiff for use as a suspending agent was not pursuant to that agreement so as to obligate plaintiff to enter into licensee agreement and pay royalties thereunder.

20. Implied and Constructive Contracts ⇐3

Plaintiff, which used defendant's product as a suspending agent in its insecticide, was not liable to defendant for breach of contract implied from unauthorized use of defendant's trade secret or unauthorized use of defendant's trade secret unjustly enriching plaintiff, because when defendant first requested plaintiff's help in solving problem with insecticide, it was seeking free technical or customer service, when defendant shipped samples it never indicated that compensation was expected, and defendant did not indicate that responding to plaintiff's request for customer service, defendant was intending to establish a confidential relationship.

21. Patents ⇐325.11(3)

There were genuine issues of material fact in dispute over validity of patent which could not be resolved by summary judgment; therefore, bad faith could not be attributed to defendant for opposing plaintiff's summary judgment motion so as to make case "exceptional" and entitle plaintiff to attorney fees under statute. 35 U.S.C.A. § 285.

22. Patents ⇐325.11(3)

Where patent was found to be invalid under "in public use" and "on sale" statutory bar, and court intentionally refrained from passing on all of plaintiff's claims that patent was unenforceable on ground that fraud was practiced in Patent Office, plaintiff was not entitled to attorney fees on basis that patentee intentionally practiced fraud upon Patent Office so as to make case "exceptional" within meaning of statute providing for fees. 35 U.S.C.A. § 285.

Robert K. Payson and Michael D. Goldman of Potter, Anderson & Corroon, Wil-

mington, Del., Arthur H. Seidel and Daniel A. Monaco of Seidel, Gonda & Goldhammer, P.C., Philadelphia, Pa., of counsel, for plaintiff.

John G. Mulford of Theisen, Lank, Mulford and Goldberg, P.A., Wilmington, Del., and Phillip M. Mayer of Leydig, Voit, Osann, Mayer & Holt, Ltd., Chicago, Ill., for defendants.

OPINION

LATCHUM, Chief Judge.

Pennwalt Corporation ("Pennwalt") commenced this patent suit on March 26, 1979 in which it seeks a declaratory judgment of invalidity and unenforceability of U.S. Patent No. 4,196,292 ("the '292" or "Nemeth patent") entitled "Stable Water Dispersions of Encapsulated Parathion," issued August 15, 1978 to Harold C. Nemeth. (Docket Item ["D.I."] 1.) The named defendants are Akzona, Inc. ("Akzona"), and its subsidiary Armak Co. ("Armak"). (*Id.*). The '292 patent is assigned to Akzona but the parties have agreed that Armak should be treated as the patent owner for purposes of this litigation. (D.I. 99, ¶ 1.) Armak has counterclaimed, charging that Pennwalt's agricultural insecticide trademarked "Penncap M" [1] infringes the '292 patent and in addition seeks substantial damages from Pennwalt for Penncap M sales over a six year period before the '292 patent issued based on three alternative theories: (a) breach of the 1963 Product Development Agreement ("PDA") entered into between the parties, (b) breach of implied contract to pay for the use of a trade secret, and (c) unjust enrichment for using confidential information. (D.I. 29.) Pennwalt does not contest infringement of the '292 patent (D.I. 99, ¶ 29), but has raised the defenses of the statute of limitations, laches, waiver and estoppel to Armak's counterclaim for breach of contract, breach of implied contract, and unjust enrichment. (D.I. 100 & 102.) The opposing parties seek attorneys' fees under 35 U.S.C. § 285. (D.I. 99, ¶ 1.)

The liability phase of this case was tried to the Court without a jury for nine days between February 18 and February 25, 1983. The parties have completed their post-trial briefing (D.I. 128, 129 & 130) and the case is ready for a decision on the liability issues.

Pennwalt specifically contends that the '292 patent is invalid for any one of the following reasons: (1) under 35 U.S.C. § 103 because the subject matter claimed in the '292 patent was obvious; (2) under 35 U.S.C. § 102(g) because the patented Nemeth invention was made in this country before Nemeth by a Pennwalt employee, Chester B. DeSavigny, who had not abandoned, suppressed or concealed it; (3) under 35 U.S.C. § 102(b) because the '292 invention was publicly used and on sale more than one year prior to the filing of the continuation-in-part Serial No. 457,152 ("the '152 application") on April 1, 1974, the first application complying with the requirements of 35 U.S.C. § 112, and because Nemeth is not entitled to the March 1, 1972 filing date of application Serial No. 230,935 ("the '935 application") under 35 U.S.C. § 120 in that the '935 application failed to set forth the "best mode" known to Nemeth and lacked an enabling disclosure as required by 35 U.S.C. § 112.

Finally, Pennwalt argues that the patent is unenforceable because it was procured by fraud upon the Patent Office in that: (1) Nemeth and Armak failed to advise the Patent Office that Pennwalt was making the claimed invention and selling it for more than a year before the filing date of the '152 application; (2) Nemeth falsely represented in the '935 application that he had conducted field tests prior to March 1, 1972; (3) Nemeth deliberately misidentified General Mills' experimental gums "X–383S" and "XG–458S" to the Patent Office as xanthan gum in the '935 application; (4) Nemeth concealed the fact that tragacanth gum "worked" in the '935 application; (5)

1. Pennwalt's agricultural insecticides are trademarked as "Penncap M," "Penncap E," and "Knox-out," but the parties agree that "Penncap M" should be considered as representative of all of Pennwalt's alleged infringing products. (D.I. 99, ¶ 1.)

Nemeth misrepresented that his invention was the result of a "long search" in the '152 application; and (6) Table IV of the '292 patent is the result of concealment and commingling of laboratory data and procedures.

I. VALIDITY

1. *Earliest Filing Date*

The '292 patent pertains to an insecticidal composition consisting essentially of a polymer-encapsulated insecticide suspended in an aqueous dispersion of xanthan gum (D.I. 99, ¶ 3.5). On its face, the '292 patent claims the benefit of the March 1, 1972 filing date of the '935 original grandparent application. (TX 201.)[2] Pennwalt contends that the '292 patent is not entitled to the March 1, 1972 filing date and the Court agrees.

[1] 35 U.S.C. § 120 allows a later-filed application, under specified circumstances, to claim the benefit of one or more earlier filed applications. It is well established that to come within the purview of § 120, (1) a later application must, among other things, disclose the same invention as has previously been disclosed in each prior application, and (2) each application must comply with 35 U.S.C. § 112. 35 U.S.C. § 120; *see, e.g., Acme Highway Products Corp. v. D.S. Brown Co.*, 431 F.2d 1074, 1078 (6th Cir.1970), *cert. denied*, 401 U.S. 956, 94 S.Ct. 125, 38 L.Ed.2d 57 (1971); *Bendix Corp. v. Balax, Inc.*, 421 F.2d 809, 816–17 (7th Cir.), *cert. denied*, 399 U.S. 911, 90 S.Ct. 2203, 26 L.Ed.2d 562 (1970), *reh. denied*, 414 U.S. 819, 94 S.Ct. 43, 38 L.Ed.2d 51 (1973); *Chromalloy American Corp. v. Alloy Surfaces Co.*, 339 F.Supp. 859, 874 (D.Del.1972).

[2] In the present case, the claims of the '292 patent are not entitled to the filing date of the grandparent application '935 of March 1, 1972, because they depend on entirely new matter added by the continuation-in-part ("C.I.P.") application '152 filed on April 1, 1974.

Claim 1, the broadest claim of the '292 patent, recites the following insecticidal composition (TX 201, Col. 14, line 52):

> 1. An insecticidal composition consisting essentially of an aqueous dispersion of:
>
> (a) from about 1% to about 40% by weight of said composition of capsules of a member of the group consisting of a phosphoromonothioate and a phosphorodithioate insecticide encapsulated in a skin selected from the group consisting of a polyamide, a polyurea, and a mixed polyamide-polyurea cross-linked with a cross-linking agent selected from the group consisting of a polyalkylene polyamine and a polyfunctional isocyanate;
>
> (b) from about 0.1% to about 0.5% by weight of said composition of a xanthan gum dispersant for said capsules; and
>
> (c) balance water.

Succinctly stated, three distinct types of polymer encapsulated insecticides are claimed: polyamide capsule; polyurea capsule; and cross-linked polyamide-polyurea capsule.

However, the '935 application discloses only xanthan gum dispersions of *polyamide* -encapsulated insecticides (PX 900 "O"). Nowhere in the '935 file wrapper is there any reference of polyurea-encapsulated insecticides, nor is there mention of cross-linked polyamide-polyurea encapsulated insecticides (PX 900 "O"; Tr. 1466–73). Nowhere in the '935 application is there any teaching that isocyanates could be used to produce polyureas or polyamide-polyurea copolymers (PX 900 "O"; Tr. 1467). The sole teaching of the '935 application is directed to polyamide microcapsule suspensions (PX 2, pp. 4–6, 8).

The only specific polyamide taught in the '935 application is the reaction product of adipoyl chloride and lysine in the "Background of the Invention" (PX 2, p. 5). This reaction produces a linear, non-crossed-linked polyamide (Tr. 903).

2. TX refers to Armak's trial exhibits and PX refers to Pennwalt's trial exhibits; Tr. refers to the trial transcripts found in D.I. 116 through 124.

Claim 1 of the '292 patent defines encapsulating polymers in a Markush group (TX 201, col. 14, line 57):

> [E]ncapsulated in a skin selected from a group consisting of a polyamide, a polyurea, and a mixed polyamide-polyurea cross-linked ....

The members of a Markush group are *exclusive* with respect to each other (Tr. 1470). The Manual of Patenting Examining Procedure ("MPEP") states that a Markush "type of claim is employed where there is no commonly accepted generic expression which is commensurate in scope with the field which the applicant desires to cover" (PX 1002), and this rule has been part of MPEP since at least 1964 (Tr. 1472). Nemeth, having included polyamide and polyamide-polyurea copolymers in a Markush group in the '292 claim, is now estopped from asserting in this litigation, that "polyamide" used in the '935 application is generic for cross-linked polyamide-polyurea. Indeed, there is no teaching in the '935 application that "polyamide" is used other than in its ordinary meaning to an organic chemist, which would be a plastic with long linear molecules. (Tr. 1467.)

Furthermore, there is no presumption of entitlement to the '935 filing date by the issuance of the '292 patent. The effective date of the C.I.P. claims (and the claims of the '292 patent) was never decided by the Patent Examiner. Under the MPEP, patent examiners do not ordinarily make such determinations, except in the case of "intervening art" or in case of an interference (PX 1001):

> Unless the filing date of the earlier application is actually needed, for example, in the case of an interference or to overcome a reference, there is no need to make a determination as to whether the requirement of 35 U.S.C. 120, that the earlier application disclose the invention of the second application in the manner provided by the first paragraph of 35 U.S.C. 112, is met and whether a substantial portion or all of the earlier application is repeated in the second application in a continuation-in-part situation.

MPEP § 201.08 (1982 rev.)

While the above provision was added to the MPEP after the filing date of C.I.P. '152 application, it represents a codification of pre-existing Patent Office Practice (Tr. 1459). Thus the Examiner of the '292 patent never determined the effective filing date of the claims in that patent. The new matter added by the C.I.P. on April 1, 1974 which was not disclosed in the earlier '935 application is not entitled under 35 U.S.C. § 120 to filing date of the earlier '935 application for non-disclosed matter. Such non-disclosed matter is entitled to the filing date of the C.I.P. filed on April 1, 1974. *In re Lukach,* 442 F.2d 967, 969, 58 CCPA 1302 (1971); *In re Ruscetta and Jenny,* 255 F.2d 687, 690–91, 45 CCPA 968 (1958); *In re Steenbock,* 83 F.2d 912, 913 (Cust. & Pat.App.1936).

Secondly, as mentioned earlier, in order to obtain the benefit of the filing date of a co-pending patent application, the claims of a C.I.P. application, in accordance with 35 U.S.C. § 120, must comply with the "enabling" and "best mode" disclosure requirements of the first paragraph of 35 U.S.C. § 112.

The '935 application was finally rejected by the Patent Examiner because it lacked an enabling disclosure and failed to set forth the best mode (PX 2, pp. 35–38). The basis for both rejections was substantially the same, that is, the '935 application described the encapsulating material only as a "polyamide" without identifying a specific polyamide or a method of preparation. (*Id.*).

"Polyamide" encompasses a virtually unlimited variety of diverse chemical compounds (Tr. 314; 528; 905; 1123). Armak argues that "polyamide" is not so vast and that one skilled in the art would ignore the limitless linear polyamides which do not work and focus only on narrow subgenus polyamide types possessing the requisite time-release qualities necessary for use as insecticide microcapsules, in other words,

the cross-linked polyamide-polyurea copolymers (D.I. 128, pp. 80–83).

However, as above mentioned, the only specific polyamide that appears in the '935 application is under the "Background of the Invention" and not under "detail Description of the Invention" or under "Examples," the usual place where one skilled in the art would expect to find an enabling disclosure of the claimed invention (PX 2, p. 5). But as discussed above, the adipoyl chloride-lysine reaction referred to therein produces a linear non-cross-linked polyamide, lacking time release characteristics (Tr. 902–904). The capsule releases its contents by degradation not by diffusion (Tr. 1186). The capsule so formed is especially susceptible to degradation induced by interaction with negatively charged chemicals, is thin-walled and fragile and will rupture during passage through spraying equipment (Tr. 1180–81; 1034).

The Patent Examiner expressly held that the teaching of adipoyl chloride-lysine capsules in the "Background of the Invention" did not sufficiently characterize the capsules and could not be considered a specific "polyamide" as required by the best mode requirements of § 112 (PX 2, p. 26). Nemeth argued in reply that the disclosure of "polyamide" in the '935 application coupled with the three Pennwalt U.S. Patents and one Pennwalt British Patent [3] referred to in the "Background" constituted both an enabling and best mode disclosure (PX 2, pp. 30–31). The Patent Examiner disagreed and expressly ruled that the four Pennwalt patents were not incorporated by reference (PX 2, pp. 36–38). No appeal was taken by Nemeth.

Armak relies on one of the four Pennwalt patents, cited in the '935 application [the British Vandegaer patent, 1,091,141 (PX 603)] to supply an enabling disclosure. However, the Patent Examiner specifically ruled that this British patent was not incorporated by reference in the '935 application because MPEP 608.01(p) provides that "essential material may not be incorporated by reference to foreign patents" (PX 2, p. 36). To allow Armak now in this litigation to claim that the four Pennwalt patents add an enabling disclosure to the '935 application would render the MPEP a nullity.

[3] The Patent Examiner further ruled that the British Vandegaer '141 and the other three Pennwalt patents were not part of the '935 disclosure because they were not included with the requisite specificity. A mere *reference* to another application, patent or publication, is not an *incorporation* of anything therein into the application containing such reference for the purpose of the disclosure required by 35 U.S.C. § 112. *In re Seversky*, 474 F.2d 671, 674 (Cust. & Pat.App.1973).

Even assuming that the four Pennwalt patents were properly incorporated in the '935 application, it is still non-enabling because one skilled in the art could not make and use the invention without undue experimentation. The Pennwalt microencapsulation patents (PX 600–603) teach a wide range of encapsulating polymers. British Vandegaer '141, in particular, teaches an infinite variety of polymers (Tr. 1126–27). The '935 application contains no teaching leading one skilled in the art through this range of polymers to the cross-linked polyamide and polyurea copolymers which support the claims of the '292 patent. One skilled in the art would be directed to "polyamide" capsules, specifically the ingestible capsule of Santo '776 (PX 602) which is wholly unsuitable as a time-release insecticide microcapsule.

The Court also finds that *In re Herschler*, 591 F.2d 693 (Cust. & Pat.App.1979), upon which Armak relies, is not applicable to this case because the written description in the '935 application which discloses the sole encapsulating material as "polyamide," (which does not work) furnishes absolutely no guide to predicting polymers which may be used to encapsulate insecticides. Thus the Court finds that the claims of the '292

3. Pennwalt's U.S. Patents referred to in the '935 application were Nos. 3,464,926 (PX 600); 3,492,380 (PX 601); and 3,607,776 (PX 602) and Pennwalt's British Patent No. 1,091,141 (PX 603).

patent are not supported by the disclosures in the '935 application and they are not entitled to the '935 filing date of March 1, 1972. *In re Smith,* 458 F.2d 1389, 1394, 59 CCPA 1025 (1972); *In re Lukach,* 442 F.2d 967, 969, 58 CCPA 1233 (1971); *In re Ahlbrecht,* 435 F.2d 908, 910–11, 58 CCPA 848 (1971).

Finally, the '935 application did not disclose the best mode as required by § 112. The only mode known to Nemeth prior to March 1, 1972 was a xanthan gum suspension of Penncap M's microcapsules. Nemeth's original suspension tests were conducted in April, 1971 when he used xanthan gum, trademarked as Kelzan by Kelco Co., to suspend "Penncap M" capsules (Tr. 100–106). By August, 1971, Nemeth knew that the Pennwalt material that he was working with was Pennwalt's encapsulated methyl parathion commercially identified as "Penncap M" (Tr. 83; TX 129 at Bates A07068). Also prior to filing the '935 application, Armak's patent attorney who prosecuted the '935 application knew that Pennwalt's microencapsulated insecticide carried the trademark "Penncap M" (Tr. 537; PX 18). However, Armak chose not to identify this material by Pennwalt's trademark. This was not done until the later-filed '152 C.I.P. Thus, the best mode and only mode known to Nemeth was not disclosed in the '935 application as required by § 112.

Accordingly, the Court finds that the claims of the '292 patent are not entitled to the March 1, 1972 filing date of the '935 application but can only be accorded the filing date of the C.I.P. '152 application on April 1, 1974. This finding should not come as a surprise to Armak. Sidney Shapiro, who was Nemeth's supervisor in 1971 and who followed the patent proceedings (Tr. 229), believed in early 1974 that Armak was not entitled to the 1972 filing date of the '935 application. Shapiro wrote in a memorandum, dated January 24, 1974:

> 2. *"Serial No. 230,935 by Harold Nemeth filed March 1, 1972"*
>
> *This filing date has been lost* and we will have to refile. We are shooting for a mid-February new filing date. We cannot file earlier until we obtain a definition of the nature of the capsules given in examples in the Pennwalt patent. [Emphasis added].

(PX 38; *see also* Tr. 349.)

Furthermore, this also appears to have been the belief of Jack Hall, Armak's attorney, who prosecuted the '935 application and filed the C.I.P. '152 application (Tr. 601–603).

2. *In Public Use and On Sale Issue*

The Court having determined that the claims of the '292 patent can only be accorded the April 1, 1974 filing date of the C.I.P. '152 application (the first application complying with the requirements of § 112), the Court must next decide whether the patented invention was in public use or on sale in this country more than one year prior to April 1, 1974 as Pennwalt contends.

The evidence is undisputed that between July 18 and August 7, 1972, Pennwalt manufactured at its plant in Bryan, Texas, six batches of approximately 4,300 gals. of Penncap M suspended in xanthan gum acquired from Armak and designated by Armak as "RD–4237" (PX 508; Tr. 922–23).[4] Prior to packaging the Penncap M into 5-gallon containers, by Pennwalt, a sample of each batch was removed for three-part quality control testing: (1) chemical assay, (2) toxicology, and (3) cricket bioassay, and each of the six batches of Penncap M produced in 1972 with RD–4237 passed all three tests and were released for sale (Tr. 931–33; 735–47; PX 504 and 544).

Armak sent several samples of RD–4237 to Pennwalt in 1971 and an additional pound was sent February 18, 1972. A 20-pound shipment was received by Pennwalt before the July 18, 1972 first batch was run. In response to Pennwalt's request, 100

4. The material Armak furnished to Pennwalt under its designation "RD–4237" was an industrial grade xanthan gum which Armak purchased from Kelco Co., under the latter's trademark "Kelzan," but Armak removed the Kelzan labels before shipping the xanthan gum to Pennwalt (Tr. 70, 97–100; 253–54).

pounds of RD–4237 free of charge was shipped on July 21, 1972 and finally a 300-pound shipment of RD–4237 was sent in August, 1972, and represented Pennwalt's first purchase of RD–4237 from Armak. (D.I. 99, ¶¶ 3.24 & 26.) Nemeth, who supervised the shipments, was aware that the xanthan gum would be used by Pennwalt at 0.1–0.5 weight per cent to suspend Penncap M (TX 178 at Bates A005351, Tr. 123).

Despite a diligent search,[5] only six Pennwalt sales invoices have been found which showed that 1,220 gallons of Penncap M dispersed in xanthan gum were sold from the six batches made in 1972 (PX 509; Tr. 944–53). These invoices reflect the following sales: (1) Pennwalt on August 22, 1972 sold 400 gallons from the August 2, 1972 batch to Helena Chemical Company for $900 (PX 509 at Bates 04282–284; Tr. 948, 827); (2) Pennwalt on four different occasions between August 24 and September 19, 1972 sold 1,015 gallons to Smith-Douglas of Norfolk, Va., the distribution branch of Borden Company, for $4,567.50 (PX 509 at Bates 04283–85, 04287, 04288); and (3) on August 29, 1972 Pennwalt sold a 5-gallon can to Stauffer Chemical Company in Houston, Texas for $22.50 (PX 432D; Tr. 1205). These sales of Penncap M, except for the Stauffer sale, were made directly to distributors who sold to farmer users (Tr. 827). Stauffer purchased Penncap M solely for its own purpose of evaluating a competitor's product (Tr. 1191–92). The $4.50 per gallon distributor price reflected on the invoices was set at that price to allow normal distributor and retail margins (Tr. 1429).

[4–7] These sales of 1,220 gallons of Penncap M suspended in xanthan gum in accordance with the claims of the '292 patent, were all made prior to April 1, 1973 and without question constitute an absolute statutory bar under 35 U.S.C. § 102(b) rendering the '292 patent invalid. This is so because a single unrestricted public use or sale brings into operation this bar to patentability. *Consolidated Fruit Jar v. Wright,* 94 U.S. 92, 94, 24 L.Ed. 68 (1876); *General Electric Co. v. United States,* 228 Ct.Cl. 192, 654 F.2d 55, 59 (1981); *In re Theis,* 610 F.2d 786, 791 (Cust. & Pat.App. 1979). Furthermore, the § 102(b) bar does not require the invention to be placed in public use or on sale by the patentee because such use or sale by a third party, with or without the consent of the inventor, is sufficient to invalidate any patent subsequently obtained if the use or sale occurred more than a year prior to issue. *Andrews v. Hovey,* 124 U.S. 694, 719, 8 S.Ct. 676, 686, 31 L.Ed. 557 (1888); *Hobbs v. United States,* 451 F.2d 849, 859–60 (5th Cir.1971); *O'Brien v. Westinghouse Elec. Co.,* 293 F.2d 1, 10 (3d Cir.1961); *Lorenz v. Colgate-Palmolive-Peet Co.,* 167 F.2d 423, 429 (3d Cir. 1948); *Noma Lites Canada Ltd. v. Westinghouse Elec. Corp.,* 399 F.Supp. 243, 253 (D.D.C.1975).

Indeed, Armak does not contest the factual or the legal basis of the public use and sale of the patented invention in 1972 as recited above. Rather, Armak contends that the public use and sales prior to the critical date of April 1, 1973, were completely justified under the "experimental use" doctrine first recognized by the Supreme Court in *City of Elizabeth v. American Nicholson Pavement Co.,* 97 U.S. 126, 24 L.Ed. 1000 (1878). Armak argues that the 1972 public uses and sales were made under a "temporary permit" issued under Environmental Protective Agency ("EPA") regulations[6] which provided that such tempo-

5. While sales invoices were generated by Pennwalt at Tacoma, Washington; Montgomery, Alabama; Oakbrook, Illinois; and Bryan, Texas, all sales records for 1972 were destroyed except for the records found at Bryan, Texas (Tr. 944–45, 953).

6. The "temporary permit" regulations revised as of January 1, 1972 were issued under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"), 7 U.S.C. § 135. FIFRA as originally enacted in 1947 required that all pesticides shipped in interstate commerce be registered with the Secretary of the United States Department of Agriculture ("USDA"). In addition, the Food and Drug Administration ("FDA") set tolerances for those pesticides that might leave a residue on food crops. Authority over the regulation of pesticides under FIFRA was transferred from the USDA and the FDA to the EPA on December 2, 1970, by Reorganization Plan No. 3 of

rary permits "will be issued only for bona-fide experimental programs under the supervision of qualified persons" (TX 185; 40 C.F.R. § 162.17 revised as of 1/1/72). Thus, Armak contends that since the 1972 public uses and sales of Penncap M were made by Pennwalt under an EPA experimental use permit, then *ipso facto* these public uses and sales fall within the experimental use doctrine under the patent laws and are exceptions to the statutory bar of 35 U.S.C. § 102(b). The Court disagrees.

[8] The "experimental use" doctrine, developed under U.S. patent law as an exception to the statutory bar of § 102(b), is not co-extensive with, and does not have the same meaning as, "experimental use" of pesticides conducted under an EPA temporary permit issued under our environmental protection laws. Experimentation under U.S. patent law is based upon policy grounds and for purposes wholly unrelated to, and different from, the underlying policy reasons and purposes for experimentation under federal environmental legislation. Under the facts of this case, neither the public use nor sale of the patented invention before the critical date can be considered "experimental use" under § 102(b) even though the use and sales made in 1972 were permitted by an EPA temporary permit issued for "experimental use."

The pesticide control legislation, represented by FIFRA and FIFRA–1972, was the result of congressional recognition that appropriate pesticides properly used are beneficial to man and his environment and also that many pesticides constitute poisons too dangerous for any use, that some are dangerous to the health of man, animals, bees and other useful insects unless used extremely carefully. Thus, realizing that pesticides have important environmental effects, both beneficial and deleterious, the statutory scheme was adopted to vest wise regulatory control upon all pesticides based on a careful balancing of benefit versus risk to man and his environment. Hence, at that time these regulatory acts required all pesticides, with certain exceptions, to be registered with the EPA before they could be generally distributed, sold, shipped, delivered or received by anyone. The EPA was to approve the registration of a pesticide if it were determined that (1) the pesticide warrants the claims made for it, (2) its label complies with legislation, and (3) it will not have unreasonable adverse effects on the environment. The applicant had the burden of proving these elements by test data and other relevant information. *See* 7 U.S.C. § 135 (now repealed); Pub.L. No. 92–516; Legislative History of Pesticide Control, 3 U.S.Code Cong. & Ad.News, 92d Cong., 2d Sess. (1972) at 3993–4134. In addition, the EPA was given the authority to issue temporary permits (TX 185; 40 C.F.R. § 162.17 regulations as of 1/1/72) or "experimental use permits" (7 U.S.C. § 136a), to an applicant to gather information necessary to convince the EPA to register the pesticide for general use. Thus, this pesticide regulatory legislation prohibited the sale or shipment of all unregistered pesticides, whether patented or unpatented, unless they were transferred under a temporary EPA permit. The focus of these laws and regulations was to protect the environment and had nothing to do with experimentation for patent purposes.

On the other hand, the experimental use doctrine in patent law has been explained in *Paeco, Inc. v. Applied Moldings, Inc.*, 562 F.2d 870 (3d Cir.1977), as follows:

> That doctrine allows an inventor a reasonable period of experimentation where-

1970, 35 Fed.Reg. 15623 (1970). On October 21, 1972, FIFRA was extensively amended by the Federal Environmental Pesticide Control Act, Pub.L. 92–516 ("FIFRA–1972"). FIFRA–1972 expanded the original FIFRA to cover pesticides in intrastate commerce and provided for the registration with the EPA of all pesticides to be distributed, sold or shipped, upon a showing that the pesticide warrants the claims made for it, its labeling complies with the Act, and it will not have unreasonable adverse effects upon the environment. In addition, the FIFRA–1972 provided that the EPA could issue "experimental use permits," if needed by an applicant to gather information in order to register the pesticide. (Pub.L. No. 92–516, Sections 3 & 5.)

> in he may perfect his ideas, provided that the inventor truly has utilized the public use and sale to that laudable end, not as a competitive tool to exploit his invention and gain an advantage over others.

562 F.2d at 874.

[9] This means that the public use and on sale bar of § 102(b) can be extended for a reasonable period if the experimentation is undertaken to demonstrate the utility of the claimed invention and its lack of need for further improvement. *DeLong Corp. v. Raymond International, Inc.*, 622 F.2d 1135, 1144 (3d Cir.1980). The claims of the '292 patent in suit pertain to an insecticidal-concentrate composition. Pennwalt's activity under the EPA temporary permit was in no way necessary to demonstrate the composition's "utility and its lack of need for further refinement." The utility of the composition had already been demonstrated. Each of the six batches of Penncap M suspended in xanthan gum produced in 1972 passed the cricket bioassay test (PX 504; PX 544; Tr. 746–47), as well as Pennwalt's other two quality control tests for those batches (PX 544; Tr. 747–49). The success of xanthan gum had been established as early as November 8, 1971, when Pennwalt concluded that RD–4237 was "effective." (TX 134 at Bates 01602.)

[10] Furthermore, to allow federal regulatory laws to control the patent law meaning of "public use" or "on sale" would result in a haphazard operation of the Patent Office. (Tr. 1552.) The objectives of the EPA and the Patent Office differ. A use or sale labeled "experimental" by a government regulatory agency is not necessarily "experimental" under the patent laws. As stated before, a claimed invention may be complete under the patent laws while remaining experimental in the regulatory sense. In those few cases which focus on this issue they have indicated this difference. For example, *In re Hartop*, 311 F.2d 249, 257–60, 50 CCPA 780 (1962), held that the utility of a pharmaceutical invention sufficient to premise patentability does not depend on absolute proof of safety. Proof of reduction to practice of a pharmaceutical invention does not require Food and Drug Administration approval or proof of commercial marketability. *Campbell v. Wettstein*, 476 F.2d 642, 646 (Cust. & Pat.App.1973); *In re Anthony*, 414 F.2d 1383, 1396, 56 CCPA 1443 (1969). The mere fact that an electrical device was sold before Underwriters Laboratory approval does not avoid the statutory bar of § 102(b). *Interroyal Corp. v. Summons Co.*, 204 U.S.P.Q. 562, 565–66 (S.D.N.Y.1971).

Armak also contends that the data gathered by Pennwalt of field tests under the EPA temporary permit indicates experimentation under the patent laws. The Court is again unable to agree. The experimental data collected by Pennwalt under the EPA temporary permit consisted of the results of spraying Penncap M upon crops in the field. The Penncap M user diluted the claimed composition many times. For example, controlling oriental fruit moth on peaches, the Penncap M temporary label recommended 1–2 parts Penncap M to 400 parts water (TX 186C at Bates 05703). For the control of tomato worms, the label recommended 1 part Penncap M to 100 parts water. At 1:100 dilution, the concentration of xanthan gum sprayed by the field user is 0.003%, far below the lower limit claimed in the '292 patent. (TX 201.) Even at the minimum 1:5 dilution suggested for insecticide concentrates by Dr. Scher, Pennwalt's expert (Tr. 1084), the concentration of xanthan gum is only 0.06%, still below the '292 claims. Certainly, any "experimental use" by field users in 1972 was outside the claims of the '292 patent.

[11] It is well settled that experimentation to perfect non-claimed features of an invention does not fall within the experimental use exception to the § 102(b) bar. *In re Theis*, 610 F.2d 786, 791 (Cust. & Pat.App.1979); *Gould, Inc. v. United States*, 217 Ct.Cl. 167, 579 F.2d 571, 582 (1978); *Carborundum Co. v. Combustion Engineering, Inc.*, 505 F.Supp. 1011, 1020 (D.Del. 1981).

[12, 13] However, there are other factors in this case which indicate that the

public use and sales of the claimed composition in 1972 were not for experimental purposes under § 102(b). Armak shipped over 400 pounds of RD–4237 to Pennwalt in 1972 knowing that it would be used to suspend Penncap M according to the claims in the '292 patent. Every witness examined on the subject testified that Armak did not restrict in any way Pennwalt's use of the RD–4237. (Tr. 129–30; 355–56; 489; 618; 716; 831; PX 908 at 66; PX 901 at 92.) The absence of any restriction by the patentee on the uses of a patented invention is indicative of a non-experimental purpose. *Egbert v. Lippman,* 104 U.S. 333, 336, 26 L.Ed. 755 (1881). To avoid the on sale bar the inventor must show that the transferee lacked authority to use the invention or exploit its commercial value but where an inventor sells or delivers an invention to another without any enforceable obligation for the other to hold the invention for experimental purposes only, the unrestricted sale or delivery will invalidate the patent. *Kock v. Quaker Oats Co.,* 681 F.2d 649, 655 (9th Cir.1982), *cert. denied,* —— U.S. ——, 103 S.Ct. 787, 74 L.Ed.2d 994 (1983).

[14, 15] Another factor that is indicative of non-experimental purpose is the failure to require test reports. *Carborundum Co. v. Combustion Engineering, supra,* at 1020, 1027. The evidence in this case clearly demonstrates that Armak did not require Pennwalt to report back to it any results of its use of RD–4237 (Tr. 129, 489, 716, 813). Where a person has authority to use an invention commercially or sell to others without any duty to experiment further, there is a sale within the meaning of § 102(b) and the experiment exception does not apply. *Kock v. Quaker Oats Co.,* 681 F.2d at 656.

The evidence also clearly indicates that Pennwalt's primary motive in seeking an EPA temporary permit to ship 40,000 gals. of Penncap M between March and December, 1972 (TX 146), was commercial in order to recover part of its development expenses and to test the market (Tr. 1329). The temporary permit itself indicates that only 1.2% of the allotted 40,000 gals. was to be supplied to researchers for the collection EPA data (TX 146; Tr. 1327–28).

Also, President Spooner of Agchem, a division of Pennwalt, advised the Pennwalt Executive Committee in 1972 that he was doing everything in his power to bring Penncap M to the market immediately (Tr. 677). It was Pennwalt's persistent objective to "make money" from sales under the EPA temporary permit, and to begin recapturing part of its research and development costs associated with Penncap M (Tr. 856, 1384). Manufacturing data from 1972 was also used to generate a cost-per-gallon figure (PX 711). Data collected under the temporary permit was used to set a sales price and gross marginal goal for Penncap M (TX 183 at Bates 04213; Tr. 637–38, 644–46). All of these activities demonstrate that Pennwalt was concentrating in 1972–1973 on the commercial aspects of Penncap M and did not involve any experimental aspects that would effect the on sale bar of § 102(b).

[16] It is well established that market testing and product introduction are not experimental uses. *Omark Industries, Inc. v. Carlton Co.,* 652 F.2d 783, 787 (9th Cir. 1980); *In re Theis, supra,* 610 F.2d at 793.

[17] A final factor indicates that the sales made in 1972 could not be considered experimental use to lift the bar of § 102(b). Pennwalt, not Armak, was the entity which caused the patented dispersion to be sold to Helene Chemical, Borden and Stauffer in 1972. The law is clear that the experimental use exception to the public use and on sale bar of § 102(b) applies to experiments of the inventor or persons under his control, not to third parties. *Magnetics, Inc. v. Arnold Engineering Co.,* 438 F.2d 72, 74 (7th Cir.1971); *Bird Provision Co. v. Owens Country Sausage, Inc.,* 379 F.Supp. 744, 747–48 (N.D.Tex.1974), *aff'd,* 563 F.2d 369 (5th Cir.1978). When the sales in question were made they were made by Pennwalt which was not under the control of Armak and even if Pennwalt's activities could be

considered experimental under patent law, they would not inure to Armak's benefit.[7]

Based on the evidence in this case, the Court finds that Pennwalt has demonstrated by clear and convincing evidence that the claimed invention was in public use and on sale in this country more than one year before the critical date of April 1, 1974. *Paeco, Inc. v. Applied Moldings, Inc., supra,* 362 F.2d at 872. The Court also finds that Armak has failed to sustain its burden of showing that such uses and sales were for experimental, not commercial, purposes by a preponderance of the evidence much less by full, unequivocal and convincing evidence. *Smith & Griggs Mfg. Co. v. Sprague,* 123 U.S. 249, 264, 8 S.Ct. 122, 129, 31 L.Ed. 141 (1887).

Accordingly, the Court concludes the '292 patent is invalid because the patented invention was in public use and on sale more than one year before the critical date in violation of 35 U.S.C. § 102(b).[8]

II. ARMAK'S STATE LAW CLAIMS

As indicated earlier, Armak has asserted state law claims contending that Pennwalt is liable for its profiting from Nemeth's invention which it alleges was a trade secret from mid-1972, when Pennwalt adopted its use, to mid-1978, when the Nemeth patent issued. (D.I. 128, p. viii.) This liability is alleged to exist for the breach of the 1963 Product Development Agreement between the parties and/or the unauthorized use by Pennwalt of the then trade secret and/or the resulting unjust enrichment of Pennwalt from the use of the trade secret which was then confidential information. (*Id.*). Because of the ambivalence of the parties' conduct and actions with respect to their dealings in this matter, additional facts must be considered.

1. *Background Facts*

Pennwalt entered the field of microencapsulation upon its acquisition of Wallace & Tiernan in 1969 and concentrated on encapsulated pesticides (Tr. 874–75). Methyl parathion was selected for encapsulation because its high toxicity would benefit from the toxicity reduction and slow release afforded by encapsulation (Tr. 875–76). Chester DeSavigny of Pennwalt was the inventor of Pennwalt's encapsulated methyl parathion product, Penncap M, which became the subject of U.S. Patent No. 3,959,464, issued May 25, 1976 (TX 166).

In May of 1970, Pennwalt's people recognized that Penncap M could not be used in the field in a water system without the addition of some suspending and/or emulsifying agents (PX 501; Tr. 1309) because the encapsulated material settled to the bottom and it was difficult to disperse it (TX 193, p. 38). Various persons at Pennwalt's facilities attempted to solve the suspension problem on a "hit or miss" approach but none were knowledgeable in formulation chemistry (Tr. 638–69; 1310; 1361–62), and the solution to the problem was without much success.

On February 4 and 16, 1971, Pennwalt's personnel, Obren Keckemet and Harry Culver, wrote to six companies for help in finding a suspending agent for Penncap M and sent them samples of unsuspended Penncap M: Woodbury Industries, Inc., Emery Industries, Inc., Retzloff Chemical Company, Witco Chemical Company, Inc., Atlas Chemical Industries, Inc., and Armour Industrial Chemical Company ("Armak") (TX 100). These companies were mostly surfactant[9] suppliers (Tr. 1280). This request for technical assistance from other companies was consistent with Pennwalt's past practices (Tr. 1300; 1310) and was, and is, a common practice within the chemical industry to render technical or customer

7. As will be discussed later, this was not a joint venture with Armak.

8. In view of the Court's finding of invalidity of the '292 patent based on 35 U.S.C. § 102(b), it is unnecessary to discuss Pennwalt's other grounds of invalidity.

9. A surfactant is a material which will move preferentially to the interface between oil and water phases, thereby lowering interfacial tension (Tr. 1075; 1077).

services when requested (Tr. 661–62; 770). Typically, a chemical supplier, at the request of a customer or potential customer, will analyze a customer's problem and suggest a specific material to be used with the customer's product free of charge (Tr. 716; 662; 1352; 1211). Well known as a selling tool, the technical service can develop sales of the supplier's material for use with the customer's product (Tr. 770; 716).

Pennwalt's request to Armak, as well as to the other five companies contacted, was for this customer service type of assistance. Pennwalt's request to Armak was directed to Dr. Walter W. Abramitis who was the Section Head of Armak's Agriculture Chemical Research and Pennwalt's contact with Armak in the agricultural chemical field (PX 901, p. 4; Tr. 1301). Part of Abramitis' duties for Armak was problem solving for customers, that is, "if a customer needed a specific product that he wanted, why, I would try to adapt our chemicals to his needs." (PX 901, p. 9.) Pennwalt had been since 1960 a customer of Armak buying hundreds of thousands of dollars annually of amides and surfactants (Tr. 682; 812).

When Culver of Pennwalt wrote to Abramitis on February 16, 1971 regarding Pennwalt's suspension problem, he specifically asked if Abramitis could "find a combination of those good Armour surfactants that will do the job." (TX 100.) Abramitis brought the problem to Sidney Shapiro, then assistant director of research for Armak (Tr. 196–98). Shapiro turned the problem over to Nemeth (Tr. 201; 66). Nemeth, on April 1, 1971, performed his first work in suspending the Penncap M samples received from Pennwalt (TX 103). Prior thereto, Armak had on hand a sample of "Kelzan" xanthan gum which had been ordered by Shapiro (Tr. 231). Kelzan had been used before by Armak as a thickener (Tr. 222).

Both Nemeth and Shapiro knew that gums were useful as suspension agents and Nemeth was led first to try Kelzan, an industrial grade xanthan gum, manufactured by Kelco Company (Tr. 97–100; 102; 253–54). Nemeth's April, 1971 experiment required him to weigh out the suspending agent into Penncap M, stirring the mixture with an agitator at room temperature, and observing the results 24 hours later (Tr. 105–106). Nemeth performed additional work in August and September, 1971, screening additional possible suspending agents (TX 129), the result of which indicated that besides Kelzan xanthan gum, which showed the best results (TX 105), other gums also worked as suspending agents (PX 13, 18; Tr. 533–42).

Sometime shortly after April 28, 1971, formulations bearing "TD" code numbers designated by Abramitis were sent by Armak to Pennwalt (Tr. 207; TX 106). Pennwalt analyzed these formulations also with others submitted by other companies and those generated by Pennwalt. Boiled down to specifics, it appeared by November, 1971 to Pennwalt that Armak's submission as RD–4237 appeared to be "really effective" (TX 134). At no time did Armak disclose to Pennwalt the chemical identity of RD–4237 as xanthan gum (Tr. 254–55).

In October, 1971, Keckemet learned for the first time: (1) that Armak was "asking for some kind of money compensation" for Pennwalt's use of RD–4237 (Tr. 1357), (2) that Armak was "applying for a patent for this material as a suspending agent and tentatively they intend to charge us royalties of $.07/gal., based on selling price of Penncap M if patent is issued, or $.04/gal. if patent is not issued (this in addition to cost of material)," and (3) that Armak "will be buying this material from another company" (TX 3). Nothing, however, was apparently mentioned of royalties until later.

In 1971, Pennwalt began producing Penncap M in a pilot plant at Bryan, Texas, which produced 20-gallon size batches (Tr. 899, 734). At that time Sponto 176, a suspending-emulsifying agent supplied by Retzloff Chemical Co., was used in producing Penncap M (Tr. 1310). Keckemet testified that Pennwalt selected Sponto 176 over Armak's RD–4237 because Pennwalt had more experience with Sponto 176, test data indicated that it was biologically and toxicologically safe, and Pennwalt did not know

whether RD–4237 would be cleared by the EPA whereas Sponto 176 had been so cleared (Tr. 1308, 1309, 1339–40).

In March, 1972, a full sized production plant came on stream at Bryan, Texas, capable of producing 750 gallon batches (Tr. 898). The first full-size production batches of Penncap M used Sponto 176 but problems resulted: the Penncap M settled and became non-pourable and more seriously, the methyl parathion began leaching out of microcapsules into the surrounding aqueous phase (Tr. 935, 924). As a result of these problems during production, Pennwalt in July, 1972 stopped using Sponto 176 and switched to Armak's RD–4237 agent and the first batch so run was on July 18, 1972 (PX 508, Tr. 922–23; 936).

After July 18, 1972, all of Penncap M was produced using RD–4237 as the suspending agent and Armak had knowledge of this and indeed had shipped an additional 400 pounds in July and August, 1972 for these runs. (D.I. 99, ¶¶ 3.24 & 26.) It was then on August 4, 1972, that Roy deVries, Armak's Director of Marketing, wrote to Robert Toth, Agchem's newly appointed General Manager, suggesting that the parties "should sit down and come to some agreement on the terms under which we would be prepared to arrange this." (TX 18.) Toth responded that "he would confer with Pennwalt's technical and manufacturing people" and that "[w]e should sit down and discuss the agreement as soon as we determine the future of your product." (TX 19.) Toth testified he meant by "future of your product" from a business standpoint rather than a formulation standpoint. (Tr. 838.) Pennwalt was then beginning a "test marketing program" and it appeared to Toth that Armak knew that Pennwalt was using RD–4237 in that program. (Tr. 836–38.)

Next, on November 22, 1972, G.F. Smitskamp, Vice President of Armak, wrote to Toth raising three points: (1) a possible agreement on the suspending agent for Penncap M, (2) a possible agreement concerning third party investigations of unpatented products submitted by Armak to Pennwalt, and (3) when Armak should file for foreign patent applications on Penncap M's suspending agent and whether Pennwalt would be willing to pay for the filings. (PX 540.) Toth responded on January 8, 1973 that the decision to file in foreign countries and the expense was up to Armak. (TX 25.) Toth testified that his response to the possibility of royalty payments in his letter to Smitskamp referred to possible royalty agreements in foreign countries if Pennwalt decided to market Penncap abroad. (Tr. 799–800.)

Toth met with Armak representatives on March 27, 1973, and expressed an unwillingness to discuss a royalty until Armak's patent status was determined (TX 28). Toth stated that, once Armak produced a patent for the suspending agent, he would forward it to Pennwalt's patent department for review (Tr. 801).

Smitskamp testified that during a telephone call he made to Toth on April 24, 1973, Toth agreed that any royalty agreement eventually reached would be retroactive to include all RD–4237 shipments beginning in April, 1973. (TX 29A; Tr. 457.) Smitskamp also testified he told Toth that if the royalty agreement was not made retroactive, the 300-pound shipment now on the loading dock would not be delivered to Pennwalt (Tr. 457). Toth recalled the conversation but not the threat to cut off the supply of RD–4237 or that he agreed to retroactivity of any future royalty agreement; he did recall telling Smitskamp that Penncap M was being test marketed to determine how the product was accepted at proper selling price. (Tr. 802.) Smitskamp offered to send a royalty agreement and Toth replied, "Fine send me an agreement, send us a draft, and we'll take a look at it." (*Id.*) Smitskamp sent Toth a confirmatory letter on April 25, 1973 stating, "we are proposing a royalty of 7% on the value of your finished product," that he appreciated Toth agreeing to the retroactive condition, and that he would submit a Licensing Agreement. (TX 29.) Toth never responded to this letter. (Tr. 846.)

On August 3, 1973, Kelco Company at Pennwalt's request reverse-engineered a

sample of Armak's RD–4237 and determined its identity to be xanthan gum that was well within the specification range of Kelzan [10] (TX 31). The identity of RD–4237 was confirmed when Shapiro wrote to DeSavigny on June 18, 1974, confirming that Armak would supply Pennwalt with 6,000 pounds of RD–4237 at 600 pounds per month starting October 1, 1974, and by error included a shipping order to that letter which identified RD–4237 as Kelzan (PX 510).

In April 1974, Pennwalt received the draft royalty agreement from Armak which had been promised the year before. Toth expressed a willingness to buy xanthan gum from Armak under a resale agreement if Armak's price was competitive (Tr. 818–19; TX 42). Throughout 1974 Armak insisted its patent would issue and Toth maintained Pennwalt's position that there would be no negotiations until the patent issued and was reviewed by Pennwalt's patent department (Tr. 820–21; 841–42).

No further negotiations took place until President Spooner of Agchem met with Armak Vice President F.L. Linton on May 23, 1978, and for the first time Armak asserted that the Product Development Agreement ("PDA"), dated November 26, 1963 (TX 80), controlled the question of royalties for Pennwalt's use of RD–4237 (Tr. 648). Further negotiations were fruitless and this lawsuit was filed on March 26, 1979.

When Pennwalt learned independently of Armak that RD–4237 was Kelzan xanthan gum, Pennwalt elected to discontinue buying Kelzan from Armak. (D.I. 99, ¶ 3.23.)

2. *The Product Development Agreement*

The predecessors of Armak and Pennwalt began their cooperative efforts in the field of agricultural chemicals in the late 1950's (Tr. 404) and this eventually resulted in the execution of the PDA, dated November 26, 1963. (Tr. 407; TX 80.) The intent of the PDA was to complement the respective strengths of the two companies as the recitals of the agreement show:

> 1. The purpose of this agreement is to establish a basis for cooperation between PENNSALT and ARMOUR and *the field for this cooperative effort shall be the development of pesticides,* to include, but not limited to, insecticides, fungicides, herbicides, rodenticides, plant growth regulators, nematocides, and harvest aid chemicals.
>
> 2. *ARMOUR has developed chemicals and formulations showing possible pesticidal activity* and is continuing research and formulation development on products of this type. It is desired to have these materials tested further in laboratory, greenhouse, and the field in order to develop said products to commercial usage.
>
> 3. PENNSALT has pesticide development personnel and facilities and desires to screen and test these chemicals and formulations for *pesticidal activity* for the purpose of developing additional pesticides which may be marketed by PENNSALT in the United States and in foreign countries.

(TX 80; emphasis added.)

Armak contends that the submission of RD–4237 (xanthan gum) to Pennwalt was pursuant to the PDA and thus Pennwalt is obligated to enter into a licensing agreement and pay royalties thereunder. Pennwalt's failure to do so, Armak argues, amounts to a breach of the PDA. Mr. Karl Bierman, a former Vice President of Armak, and Mr. Richard Reck, Armak's Director of Commercial Development, testified that it was their opinion and belief that the PDA clearly embraced Armak's submission of RD–4237. (Tr. 418–19; 501.) Their testimony is flatly contradicted by the testimony and other witnesses which will be hereinafter discussed.

[18] Faced with such contradictory testimony, courts turn, as an important aid to the construction of a contract, to examine

10. In November and December, 1972, DeSavigny, reporting on a study he made of suspending agents, came to the belief that RD–4237 was xanthan gum because it behaved in physical characteristics as General Mills XB23 and Kelzan which he had tested and knew were xanthan gums (PX 522; Tr. 955–56).

the practical construction placed on the agreement by the parties themselves. *American Bemberg Corp. v. United States,* 150 F.Supp. 355, 361 (D.Del.1957), *aff'd,* 253 F.2d 691 (3d Cir.), *cert. denied,* 358 U.S. 827, 79 S.Ct. 45, 3 L.Ed.2d 67 (1958); *see Canister Co. v. National-Can Corp.,* 71 F.Supp. 49, 50 (D.Del.1946), where Judge Leahy adopted the wisdom of Lord Chancellor Sugden in *Attorney General v. Drummond,* 1 Drury & Warren 353, 368, "Tell me what you have done under a deed, and I will tell you what that deed means." This advice is particularly applicable to this case.

First, the above recitals of the PDA refer to Armak's submission of an *active* pesticide or to the submission of an Armak chemical which *chemically reacted* with a Pennwalt compound to create an active pesticide. Here the submission was xanthan gum which is an "adjuvant"—an inert ingredient in a pesticide formulation which improves the physical characteristics of the formulation, but does not react chemically with other components of the formulation. (PX 908 at 61–62; PX 901 at 19; Tr. 216, 220.)

Second, the first license agreement between Pennwalt and Armak which arose under the PDA related to an amine-endothall salt. (TX 67.) Pennwalt's endothall herbicide was chemically reacted with Armak's patented amine, resulting in herbicidal salt which produced a more active product than Pennwalt's endothall herbicide. (Tr. 508, 688.)

Third, the amine-endothall license agreement was premised on Armak's patent or pending patent applications and absent the patent, Pennwalt would not have entered into the license agreement (Tr. 694–96). All later submissions of Armak under the PDA included *active pesticides* and each agreement arising therefrom was in the form of a patent license (Tr. 686–87). No licensing agreements between Pennwalt and Armak were ever directed to inert substances and Pennwalt never paid a royalty to Armak for an inert adjuvant (Tr. 687; PX 901 at 38).

Fourth, from 1972 through 1974, Smitskamp, Armak's Vice President, was actively seeking Pennwalt's agreement to pay a royalty on RD–4237, but at no time did anyone at Armak refer to the PDA as a basis for such an agreement (Tr. 488–89). It was not until after Linton became Vice President of Armak's Chemical Division and on May 23, 1978, that the PDA was ever mentioned with respect to RD–4237 (Tr. 648).

Fifth, another indication that the parties did not believe the PDA was applicable to RD–4237 is the fact that Section 4 of the PDA was not followed by Armak. Section 4 provides, in part:

> Each company will keep its own invention records and seek its own patents, *and will keep the other party fully informed of the patent application status* of each of its inventions relating to pesticide chemicals covered by this agreement.

(TX 80; emphasis added.)

In 1965, patent counsel for the parties reached an understanding as to how the parties would operate under this provision; Armak was to furnish drafts of Armak's patent applications to Pennwalt for comment before filing in the Patent Office. (PX 513 & 515.) However, no part of three Nemeth patent applications leading to the '292 patent were ever revealed to Pennwalt, apart from the allowed claims of the issued patent in 1978 (Tr. 654–55). Had Armak believed that the PDA covered RD–4237, the three applications would have been submitted to Pennwalt before filing.

Finally, Section 3 of the PDA required Armak to release to Pennwalt the identity of all material submitted for testing upon request of Pennwalt. That provision reads:

SECTION 3—LIMITATIONS

1. ARMOUR will release the chemical identification of compounds or other data on materials when submitted to PENNSALT for testing in accordance with Secrecy Agreement Letter dated February 17, 1961 [TX–70] and the supplemental letter of March 30, 1961 [TX–72] from L.M. Miller of ARMOUR to J.D. Watson of PENNSALT.

Although repeated requests by Pennwalt were made, Armak never revealed the identity of "RD–4237." Pennwalt asked Abramitis of Armak for the identity of RD–4237 on the following occasions: May 3, 1971 (TX 109); August 2, 1971 (TX 177); November 3, 1971 (TX 8); and during a November, 1972 meeting in Tacoma, Washington (TX 21 at Bates A006229; Toth 794–95). According to the testimony of Armak's witness Bierman, if RD–4237 was covered by the PDA, its identity should have been disclosed to Pennwalt. (Tr. 432–33.) This is simply another example of Armak's conduct which leads to the conclusion that PDA did not apply to RD–4237.

[19] Accordingly, having considered and weighed the testimony of the witnesses, the documentary evidence, and the conduct of the parties, the Court concludes that RD–4237 (xanthan gum—an inert adjuvant) was not within the scope of PDA and therefore the PDA affords no basis for holding Pennwalt liable for damages for breach of express contract.

3. *Implied Contract or Unjust Enrichment*

[20] Armak contends that it is entitled to a finding that Pennwalt is liable to it upon either of two alternative theories: (1) breach of contract implied from the unauthorized use of its trade secret, or (2) unauthorized use of its trade secret unjustly enriching Pennwalt.

The difficulty in applying these two theories to this case is the lack of proof by Armak of a factual basis necessary to support those theories.

The Court is convinced by the credible evidence that on February 16, 1971, when Pennwalt first requested Abramitis of Armak, as well as the other five chemical companies, for help in solving Penncap M's dispersion problem, it was seeking free technical or customer services. This was a common practice in the chemical industry. Pennwalt had been a long time customer of Armak and it hoped that Armak's "good surfactants" could solve its dispersion problem with Penncap M. Pennwalt believed that Armak would benefit by its sales to Pennwalt. Indeed, Armak provided customer services regularly to others. Nemeth, who spent about one-half of his time between 1966 through 1979 on technical services activities (Tr. 101), never knew of an occasion when Armak attempted to charge a customer for technical services except for RD–4237. Shapiro, Nemeth's superior, testified that technical or customer services were usually compensated by sale of their products (Tr. 214–15; 218). Abramitis handled between 5 to 10 technical service requests a year during his 30-year tenure with Armak and he never once charged for such services or was aware of charges by Armak for such service to customers. (PX 901 at 10.)

Furthermore, when Armak shipped the coded samples of xanthan gum-suspended Penncap M to Pennwalt on April 28, 1971, Armak never indicated that compensation was expected, never placed any restrictions or controls over the use or disclosure of the materials, and never indicated that Armak was establishing some kind of confidential relationship with Pennwalt with respect to its request for help. Indeed, Armak remained silent in this regard while Pennwalt tested the samples, acquired more RD–4237 from Armak, and voluntarily reported back the "good results" in June 1971. While it is true, that the identity of RD–4237 was not revealed at that time or any other time intentionally by Armak, the purpose and use of the material was certainly disclosed because it was prepared and shipped in response to Pennwalt's request for specific technical services. The "benefit" conferred on Pennwalt and the "service performed" by Armak was completed when Pennwalt was sent the dispersion material on April 28, 1971. An uncommunicated expectation of remuneration at the time services are performed does not give rise to an implied or quasi-contract when Pennwalt had no reason to believe that compensation was expected for that service. *See Bloomgarden v. Coyer,* 479 F.2d 201, 202 (D.C.Cir. 1973).

Equally important is the fact that in April, 1971 Armak did not indicate that by responding to Pennwalt's request for customer service, Armak was attempting to establish a confidential relationship. If this was Armak's intent, it should have put its customer Pennwalt on notice of this condition. The Court is convinced that Armak did not do so at that time because it considered its help to Pennwalt to be free customer service. It was not until October, 1971, as a complete afterthought, that Armak decided to file a patent application and tentatively to seek some form of royalty (TX 3).

After Pennwalt began to manufacture and sell larger batches of Penncap M suspended in RD–4237 in July and August, 1972, of which Armak was aware (TX 22) having shipped an additional 400 pounds to Pennwalt at Bryan, Texas, and it having appeared that Penncap M would have an excellent commercial future, Armak then began to agitate for an agreement with Pennwalt for the payment of royalties. Apparently, Armak, through Smitskamp and Linton, was seeking an *Aronson*-type contract [*see Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 99 S.Ct. 1096, 59 L.Ed.2d 296 (1979)], whereby Pennwalt would agree to pay certain royalties if a patent issued to Armak and lower royalties if a patent did not issue, and to pay such royalties retroactive to April, 1973. These specific requests for royalties caused Pennwalt to take the position, which it has consistently maintained ever since, that it would only pay royalties if Armak obtained a valid patent on Penncap M's suspending agent.

These conflicting positions of the parties do not give rise to any expressed or implied contract to pay royalties for services which the parties originally considered and treated as ordinary free customer services.

In any event, even the identity of RD–4237 was no longer a secret after August 3, 1973. At that time, Kelco Company by reverse engineering had determined at Pennwalt's request that RD–4237 was xanthan gum and probably Kelco's own Kelzan (TX 31). Trade secret law, even if it were applicable here, does not afford protection against discovery by fair and honest means, such as independent invention, accidental disclosure or reverse engineering. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 474, 94 S.Ct. 1879, 1882, 4 L.Ed.2d 315 (1974).

Moreover, on the proof adduced in this case, no confidential relationship existed between the parties on the RD–4237 issue. Their relationship with respect to RD–4237 began with a customer's request for technical services from a supplier. The technical services were given to Pennwalt without restrictions on its use or disclosure, nor was it stated to be in confidence. Thus, the Court finds that the necessary elements for a recovery against Pennwalt based on a trade secret has not been demonstrated. The Court therefore concludes that Armak has not established Pennwalt's liability on the theory of breach of implied contract or unjust enrichment.[11]

III. ATTORNEY'S FEES

Pennwalt, in seeking reasonable attorney's fees on the basis that this is an "exceptional" case within the meaning of 35 U.S.C. § 285, advances two grounds: (1) Armak successfully opposed Pennwalt's summary judgment motion thereby forcing Pennwalt to incur far larger attorney's fees in proceeding with a bench trial than would have resulted if it had been disposed of by summary judgment, and (2) Armak intentionally practiced fraud upon the Patent Office during the prosecution of the three patent applications leading to the issuance of the '292 patent.

[21] First, the Court finds no merit to Pennwalt's first ground. There were genuine issues of material fact in dispute which could not be resolved by summary judgment thereby requiring a bench trial to resolve the disputed facts. The Court can-

11. Because of this ruling, it is unnecessary for the Court to pass on Pennwalt's affirmative defenses that Armak's state law claims are barred by the statute of limitations, and doctrine of laches, waiver and estoppel.

not attribute bad faith to Armak for opposing plaintiff's summary judgment motion.

[22] Second, the Court has found the '292 patent to be invalid under the "in public use" and "on sale" bar of 35 U.S.C. § 102(b). It has also intentionally refrained from passing on all of Pennwalt's claims that the '292 patent is unenforceable on the ground that fraud was practiced on the Patent Office. The Court sees no need to "beat a dead horse to death" in order to determine that the '292 patent already found to be invalid is also unenforceable because of fraud. Therefore, without specifically deciding whether all of Armak's alleged acts amounted to fraud, the Court does find that the prosecution of the three patent applications leading to the '292 patent leaves much to be desired and that the conduct of Armak before the Patent Office was less than candid. The fact that this Court has invalidated the patent based on the statutory bar of § 102(b) creates the suspicion that had the relevant facts been disclosed in the beginning, the Patent Examiner would not have issued the patent. However, Armak has made a showing that it sincerely believed that the "experimental use" under the federal environmental laws could be equated with "experimental use" under the patent laws so as to take the case out of the § 102(b) bar. While this bona fide belief, which was not disclosed to the Patent Office, falls short of standards required for patent practice, nevertheless, it was sufficient to support a good faith belief in the patent's validity. Consequently, based on this finding, the Court, in the exercise of its discretion, holds that this case is not "exceptional" for the purpose of requiring Armak to pay Pennwalt's attorney's fees under 35 U.S.C. § 285. *See Union Carbide Corp. v. Borg-Warner Corp.*, 550 F.2d 355, 362–63 (6th Cir.1977); *Indiana General Corp. v. Krystinel Corp.*, 421 F.2d 1023, 1033–34 (2d Cir.1970), *cert. denied*, 398 U.S. 928, 90 S.Ct. 1820, 26 L.Ed.2d 91 (1970).

This opinion shall constitute the Court's findings of fact and conclusions of law required by Rule 52(a), Fed.R.Civ.P.

Judgment will be entered in accordance with this opinion.

Frances E. BELL

v.

John C. BRENNAN, et al.

Civ. A. No. 83–1185.

United States District Court,
E.D. Pennsylvania.

Aug. 22, 1983.

Civil rights action was brought. Defendants moved to dismiss. The District Court, Giles, J., held that complaint alleging that plaintiff was erroneously issued citation for reckless driving after being involved in collision with automobile being driven by police officer failed to state claim for relief under federal civil rights law.

Motion granted.

1. Civil Rights ⇐13.12(5)

Count in complaint alleging that plaintiff was erroneously issued citation for reckless driving after being involved in collision with automobile being driven by police officer failed to state claim for relief under statute prohibiting discrimination based upon race where there was no allegation that plaintiff was treated unfairly and unequally on account of her race. 42 U.S.C.A. § 1981.

2. Civil Rights ⇐13.12(7, 8)

Valid cause of action under section 1983 is not made out simply by asserting that common-law tort was committed by state official; rather, plaintiff must allege deprivation of some constitutional right under color of law. 42 U.S.C.A. § 1983.

MEMORANDUM

To: Jerry Williamson

From: Bill Davis
Bob Emrick
Jim Johnson

Date: November 18, 1994

Subject: Heidelberg Plate Clamps and Chambered Doctor System

Jerry,

We spoke to Bob Boyer and John Dowey today regarding the above reference. I have the following information on the Heidelberg Adjustable Plate Clamps for the coating tower unit.

1. Installation: Installlation of this plate clamp system takes one man approximately 8 hours.

2. The installation of the plate clamps involves pinning the clamps to the cylinder. This would make it impractical to move the clamps from one coating tower to another.

3. Deliver time for the clamps was quoted at 6-8 weeks but Bob believes that this can be hurried up once an order is placed.

4. Pricing: Bob said that if a multiple purchase of more than one clamp is made, the price would be less 10% discount. This would mean that the cost of the clamp system for each tower coater would be $8,730. Total budget for the 4 tower coaters on the first 3 presses would $34,920. Total budget for all 5 presses or 6 tower coaters would be $52,380.

5. The above pricing does include installation of each clamp system.

6. In response to Jesse's desire to run flexo metallics or PMS colors on one of the printing units, John Dowey has responded saying that in theory the plate clamp system could be mounted for this purpose.

7. John also mentioned that once the adjustable plate clamps are mounted on the coater blanket cyclinder, it is necessary to use an aluminum crimped blanket bar in conjunction with the clamp system. This should not present a problem as we are using the crimp on aluminum blanket bars on all of our blankets anyway.

Regarding the Chambered Doctor System for installation on the Heidelberg presses, I have the following:

1. Heidelberg would extend the same 10% discount on this unit. Budget for this unit would be $60,750 each.

2. Heidelberg recommends installation of this system on the first tower of the triple tower press. The installation of this unit is semi-permanent and would take two men approximately 8 hours to install.

3. The limitations of this system are that it is much more difficult to change the amount of coating applied to the sheet. Whereas, with a standard coater adjustment of the volume of coating can be done with the speed of the coater. With the chambered coater, it will be necessary to change coatings to see if more coating can be applied with a different viscosity coating. The other method for changing the amount of coating would be to change the grain of the annalux roller.

4. The installation of the Chambered Doctor System on the first tower of the triple tower press would allow you to apply metallics or other coatings down first. The technique then calls for drying this coating and applying a sealer with the second tower.

Please let us know if we may be of further assistance in this matter.

Respectfully submitted,

Bill L. Davis
Bob Emrick
Jim Johnson

HEIDELBERG

October 26, 1994

Telefax to: Jerry Williamson, CEO
Jesse Williamson, President
Williamson Printing Co.

From: John Dowey

Subject: ***Pre DRUPA Double Coater Press***

Press Marketing

Heidelberg USA, Inc.

1000 Gutenberg Drive
Kennesaw, GA 30144
Phone 404 419 8500
Fax 404 419 6625

Dear Jerry and Jesse:

Mr. Bob Boyer brought your request for the Heidelberg factory to possibly have the DRUPA innovations of running register on the coating units and automatic register in-line, fitted to your Speedmaster CD102S+LYL. This machine is presently under construction and we hope that it will leave the factory in late December.

We regret to inform you that these features cannot be adapted to the present design due to several mechanical and electronic changes, which Mr. Boyer confidentially briefed you on. These options are only available on the DRUPA design machine which would be available in during the third quarter of 1995. They cannot be retrofitted to the existing design.

We confirm that it is now possible to retrofit the coating clamps that allow manual register adjustments and precise mounting of spot coating plates. Thus these could be fitted to the coating units of your existing presses, as well as the December pre-DRUPA CD102S+LYL

We look forward to meeting with you here in Heidelberg during the week of December 10 to demonstrate the chambered doctor blade system for coating, and give you a private showing of the DRUPA design at the factory as well as a customer installation here in Germany.

Regards,

John Dowey
Marketing Director/Speedmaster

cc: Hans Peetz-Larsen
Wolf Hager
Mike Morgan
Scott Brown
Reginald Rettig, HDM/Germany

HEIDELBERG

Southwest Region

Heidelberg USA, Inc.
1801 Royal Lane
Suite 1012
Dallas, TX 75229
Phone 214 506 7000
Fax 214 506 0476

November 8, 1994

Jerry and Jesse Williamson
Williamson Printing Corporation
6700 Denton Drive
Dallas, Texas 75235

Dear Jerry and Jesse,

Pursuant to our conversations regarding the special plate clamps for our coating tower that facilitate the use of Cyrel or other flexo type plates to be mounted and registered, and the Chambered Doctor System for the coating tower, please note the attached information from our Factory.

I highly recommend that you place an order immediately for the special plate clamps so as to expedite factory shipment and installation on your Seven Color press for evaluation.

It is also my recommendation that in conjunction with our trip to Germany on December 10, 1994 to evaluate the Drupa CD Technology, we arrange a demonstration of the Chambered Doctor System. Upon your review and evaluation we can then proceed with your order for the system with the noted approximate delivery and installation times.

As always, it is a pleasure to work with you and your fine group of associates. I look forward to our trip to Germany and to continuing to build and strengthen our partnership.

Sincerely,

Bob Boyer
Regional Manager
Heidelberg USA, Inc.

cc: Bill Davis
Bob Emerick
Jim Johnson

BASF CORPORATION

PROPOSAL FOR

WILLIAMSON PRINTING CORPORATION

October 13, 1994

Mr. Richard Torres
Pre-Press Director
Williamson Printing Corporation
6700 Denton Drive
Dallas, Texas 75235

Dear Mr. Torres:

We are pleased to offer Williamson Printing Corporation a proposal designed to provide you with the most advanced, efficient and profit producing plate technology in the world today. We are certain it will enhance your productivity, quality and safety while reducing your costs for many years to come.

The contents of this offering contain several financial enhancements that we believe will produce early satisfaction and substantial benefits for Williamson Printing Corporation.

We are delighted with your interest and consideration. We look forward to a long, friendly and beneficial relationship.

Sincerely,

Gregory Canty
Technical Sales Representative
Printing Plate Systems

Enclosures

cc: Carl Weber
Brian Reilly
File

BASF CORPORATION

BASF Corporation, headquarters in Parsippany, New Jersey, is now one of the ten largest chemical companies in North American with annual sales of over $5 billion. Products manufactured by our 18,000 employees in North America make up more the 90% of BASF Corporation sales.

Key components of BASF's North American business included Fibers, Chemicals, Information Systems, Structural Materials and the Coatings & Colorants Division.

COATINGS & COLORANTS

The Coatings & Colorants Division is composed of Automotive OEM Coatings, Automotive Refinishing Products, Printing Plates, Publication Inks and Container Inks and Coatings.

The Graphic Systems Operating Division within Coatings & Colorants now integrates BASF's printing products operations and substantially increases our ability to efficiently serve the Graphic Arts industry. This organization combines Printing Plate Systems and Publication Inks. Printing Plate Systems continual progresses with its nyloflex® flexographic plates and processing equipment as well as its nyloprint lines.

Plates, publication inks, coatings and pressroom chemical products position Coatings & Colorants as a broad based supplier to the Graphic Arts industry. Vertical integration in pigments (Chemicals Division, Holland, Michigan) and ink vehicles (Coatings & Colorants Division, Greenville, Ohio) provide the raw material technologies and supply consistency required of a major supplier.

With an extensive localized service and distribution network in the United States, Coatings & Colorants effectively combines all the benefits of large company capabilities with the personalized service of the best of smaller concerns. Coatings & Colorants brings these capabilities to all of the major printing markets.

Coatings & Colorants' strengths in the United States are reinforced by the worldwide strength of the BASF Group with headquarters in Germany.

Extensive research capabilities focused on all aspects of printing technology and supply keeps BASF on the leading edge of technology around the world.

TABLE OF CONTENTS

I. INTRODUCTION

BASF Corporation, Printing Plates Systems is pleased to offer this proposal for our nyloflex® LW 116 coating plates and processing equipment to Williamson Printing Corporation, Dallas, Texas. The benefits detailed in this proposal, such as optimized value, efficient service, product quality and consistency will in our opinion yield significant improvements.

II. PRODUCT AND BENEFITS

nyloflex® LW 116 Coating Plates

BASF coating plates have replaced hand-cut blankets to reduce press "make-ready" and downtime. They are suitable for either aqueous or UV coatings. These plates meet all of the requirements for fine detail coating jobs due to their capacity to hold high resolution elements. They offer high dimensional stability and are mounted comparable to any other printing plate. A register system facilitates accurate positioning.

The nyloflex® LW 116 coating plates represents an ideal combination of advantages.

High contrast	Sharp edges
Uniform coating film	No build-up of offset ink

Technical Information

0.046 inches thick

0.001 inches Polyester base

0.036 inches relief depth

Shore A 75 hardness

Available sheet sizes: 35 x 42, 50 x 58, 51 x 57.8. 8 sheets per carton. LW 116. 35 x 42. are available at $203.86 per plate.

nyloflex® RB 270 L Round Exposing Unit

The newly developed BASF RB 270L round exposing unit exposes nyloflex® coating plates. Different cylinder circumferences allow 1:1 transfer from negatives without time consuming and cost intensive film distortion.

Advantages

Guide rails provide easy access to the exposing cylinder

Exposing cylinders of differing diameters and widths are available as necessary

Fast plate mounting with register bar using conventional register punch. The plate and film are mounted outside of the unit

Easy to use wrap around vacuum sheet

Fast vacuum build up

Short exposure time with high output UV exposure lamps with reflectors

Simply UV lamp function review

Electronic timer

Table top unit supporting frame or legs available as extra accessories

Technical Data

Maximum plate size	32.5 x 55.25 inches*
Cylinder weight	410 lbs. gross. 220 lbs. net
Exposing unit weight	915 lbs. gross, 540 lbs. net
Dimensions	L 79.5 inches W 32.5 inches H 35.5 inches
Power	220 V, Three phase, 60 HZ. 16 amps
Lamps	20 Philips TL 80 W/10 R 59 1/16 inches

*valid for diameters of 10.625 inches. Maximum exposure cylinder 10 625

nyloflex® DW 135L Washout Unit

The BASF nyloflex® DW 135L continuous flow washout unit provides a convenient, efficient method of processing LW 116 coating plates. The exposed plates are automatically transported by a roller system through the processing section. The nyloflex®

DW 135L utilizes the proven principle of friction washout with oscillating plush pads gently removing the unexposed photopolymer with a solution of 1 percent caustic soda maintained between 122 and 131° F. The system provides totally automatic washout, rinsing, and pre-drying.

Advantages

Dry to dry plate handling

User friendly operation and maintenance

Easily removable, long lasting plush pads

Individually adjustable plush pad supports

Variable speed plate through put within a suitable range

Digital displayed flow speed

Pre-drying by circulated warm air

Easily readable displays for water temperature and pre-drying temperature

Technical Data

Maximum plate width	53.125 inches
Minimum plate length	15.75 inches
Weight	Approximately 1,430 lbs.
Dimensions	L 144 inches W 87 inches H 52 inches
Tank capacity	53 gallons each
Exhaust rate	280 feet per minute, 4 inch diameter
Power	220 V, Three phase, 60 HZ, 16 amps

nyloflex® F III Dryer

The BASF nyloflex® F III dryer provides an ease of operation in an energy efficient, user friendly unit. The F III dryer ensures uniform temperature distribution of +/- 1° C within the drawers. Operator safety is enhanced by an automatic shut off of the heating elements and circulation fans when opening the drawers. Additional safety features include an automatic shut down should temperatures exceed safety thresholds.

Advantages

- User friendly
- Uniform temperature distribution
- Energy efficient
- Automatic safety shut off

Technical Data

Maximum plate size	36.25 x 47.25 inches
Dimensions	L 80.8 inches W 42.9 inches H 36.2 inches
Weight	772 lbs.
Exhaust	5 inches diameter
Power	220 V, Three phase, 60 Hz, 50 amps

III. PROPOSAL AND OPTIONS OF FINANCING

A. BASF will supply, at a substantial discount, its nyloflex® coating plates processing systems to Williamson Printing Corporation, Dallas, Texas.

B. A certified BASF equipment engineer will assist you in the design of your platemaking facility, as well as the installation of the systems.

C. Qualified BASF technicians will train the in-plant platemakers to properly operate and maintain the systems, maximizing their value.

D. BASF will provide personnel at no charge to remain on location until all in-plant personnel are qualified in the proper platemaking skills. In addition we will conduct periodic quality control audits of systems procedures to ensure that plate preparation systems are correct and maximizing performance.

nyloflex® COATING PLATE PROCESSING EQUIPMENT

Description	List Price	Williamson Printing
RB 270L **32 x 55.25 inches**	$18.972	$14.373
DW 135L **Max. Plate Width 53.125 inches**	$62.937	$47.680
F III Dryer **36 x 47.25 inches**	$32.367	$24.520
Total	$114.276	$86.573

Note: The above items have an approximate eight to twelve weeks delivery after receipt of written order. Shipping is F.O.B., Zeeland, Michigan.

EQUIPMENT PURCHASE OPTIONS

The following options are available to Williamson Printing Corporation from the BASF, Printing Plate Systems Division, and are as follows for the purchase of the desired equipment:

OPTION 1 BASF will provide the desired equipment to Williamson Printing Corporation at the special price requiring a twenty-five (25%) down payment of $21,643.25 with the order. Williamson Printing Corporation to pay the balance ($64,929.75) in normal billing time of thirty (30) days.

OPTION 2 BASF will provide the desired equipment to Williamson Printing Corporation at list price requiring a twenty-five (25%) down payment of $28,569. Williamson Printing Corporation shall pay the balance of $85,707 during a period of twelve (12) months in equal payments of $7,142.25. No interest charges will apply.

BASF will apply plate purchases to our rebate program should Williamson Printing Corporation choose to accept Option 1. BASF will not apply plate purchases to our rebate program should Williamson Printing Corporation choose to accept Option 2. We will apply plate purchases to our rebate program after the payment period in the case of Option 2.

BASF will file the necessary UCC-1 forms while Williamson Printing Corporation pays for the equipment. In addition, Williamson Printing Corporation and BASF must sign an Equipment Sales Agreement.

VI. REBATE PROPOSAL

BASF proposes the following rebate schedule:

ANNUAL PURCHASE VOLUME	REBATE
$ 25,000 - $ 49,999	1.5%
$ 50,000 - $ 99,999	2.5%
$ 100,000 - $ 249,999	5.0%
$ 250,000 - $ 499,999	8.0%

Rebate schedule applies only to plate purchases.

VII. DURATION OF AGREEMENT

BASF submits this proposal to Williamson Printing Corporation with all prices on equipment confirmed as of October 13, 1994.

VIII. TECHNICAL AND CUSTOMER SERVICE SUPPORT

Technical Support

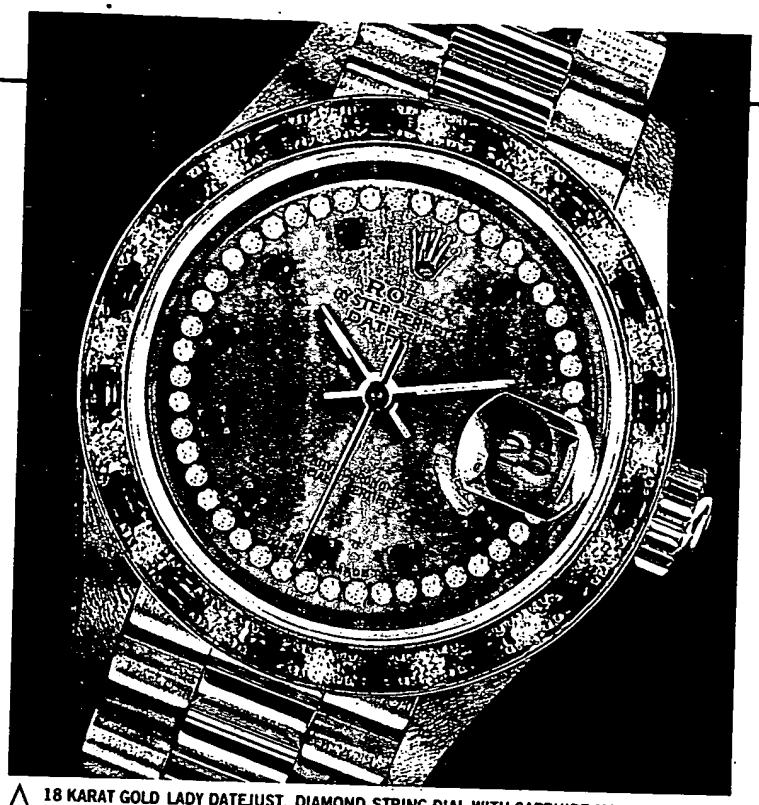
BASF provides a 24 hour, 7 days a week, Technical BASF hot line, 1-800-343-4700.

Customer Service

BASF provides extended Customer Service office hours from 8:00 AM to 5:00 PM eastern time.

Priority Service - BASF will specify a Customer Service Representative to work with Williamson Printing Corporation to expedite orders and answer any questions that may arise.

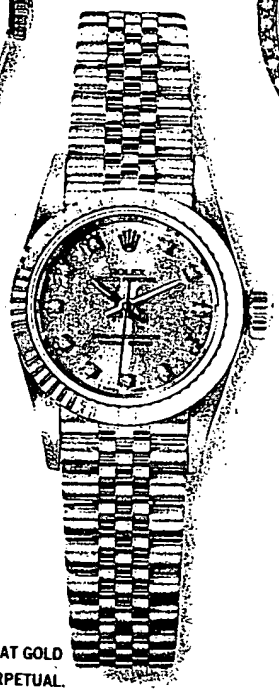
◁ 18 KARAT GOLD LADY DATEJUST WITH PLEIADE DIAMOND DIAL, DIAMOND CASE AND BRACELET.



△ 18 KARAT GOLD LADY DATEJUST, DIAMOND STRING DIAL WITH SAPPHIRE MARKERS AND SAPPHIRE AND DIAMOND BEZEL. ENLARGED TO SHOW DETAIL.

△ 18 KARAT GOLD DATEJUST.

▷ 18 KARAT GOLD DAY-DATE WITH MOTHER-OF-PEARL JUBILEE DIAMOND DIAL AND DIAMOND PRESIDENT BRACELET.



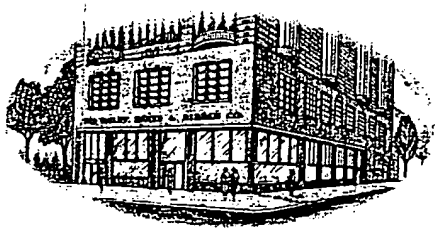
▷ LADIES' 18 KARAT GOLD OYSTER PERPETUAL.

▷ 18 KARAT GOLD LADY DATEJUST WITH MOTHER-OF-PEARL JUBILEE DIAMOND DIAL AND DIAMOND BEZEL.

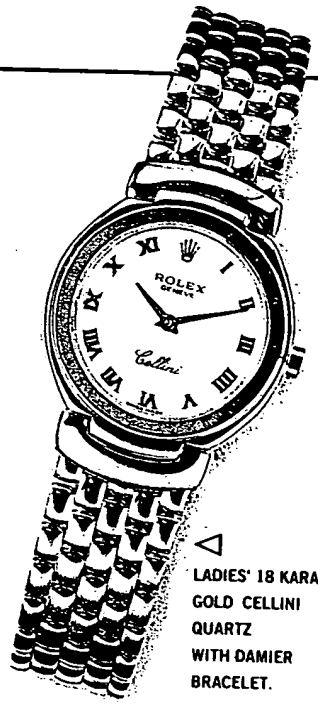
Now the hard part: 18 karat gold or stainless steel? Day-Date? GMT-Master? Datejust? Explorer II? ◈ Perhaps you need a closer look; in which case we suggest you visit Bailey Banks & Biddle and have one of our Rolex-trained associates take you through our extensive Rolex collection. ◈ Since 1832, we have been providing the finest watches, jewelry and giftware to a clientele accustomed to such things. That's why we carry only the finest quality gems, fashioned into pieces that are as timeless as they are beautiful: diamonds, rubies, emeralds, and pearls blissfully wedded to the world's most precious metals. Each an elegant union of nature's best. ◈ So, come in and view these glorious creations. And see why Bailey Banks & Biddle has been the jeweler of choice for seven generations.

◈ ◈ ◈

When selecting your Rolex watch ask about our credit plan options, including the Club Account.* It enables you to extend the payments of your purchase over ten months, with no finance charge.



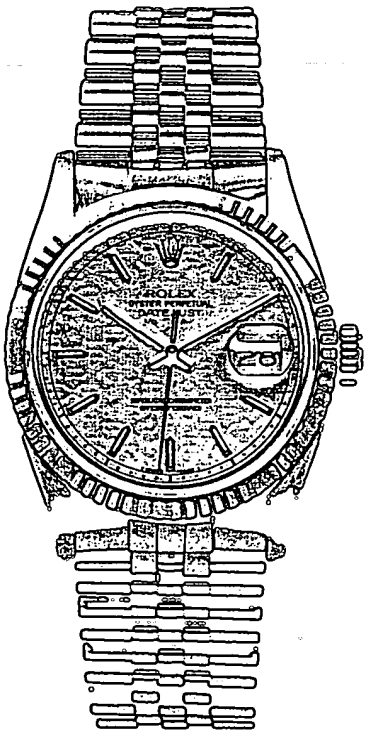
* With credit approval and a $1500 minimum purchase through December 31, 1991. In the event NationsBank fails to receive any of the required one-tenth (1/10) payments within thirty (30) days of the billing date, beginning in the next billing cycle NationsBank will impose a Finance Charge of 21.6% APR (.50 minimum) and NationsBank will continue to do so for each successive month until the outstanding balance is paid in full. See store for details. Credit program offered by NationsBank.



LADIES' 18 KARAT GOLD CELLINI QUARTZ WITH DAMIER BRACELET.

MEN'S 18 KARAT GOLD CELLINI QUARTZ WITH DAMIER BRACELET.

ROLEX



AND ANOTHER 2,000 YEARS

TO DEVELOP ONE THIS GOOD.

Δ STAINLESS STEEL AND 18 KARAT GOLD DATEJUS

BAILEY BANKS & BIDDLE

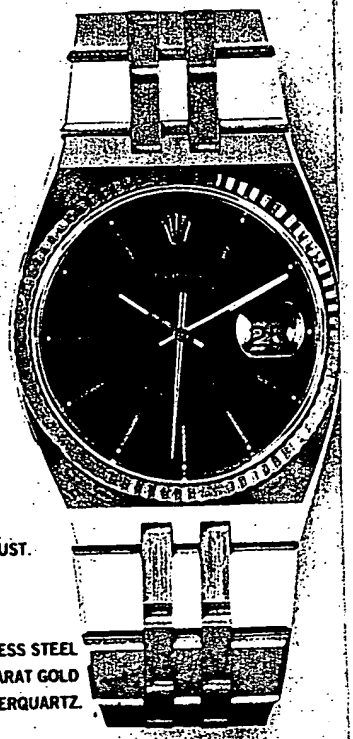
While past civilizations struggled to find a reliable method of measuring time, you have it considerably easier. Simply insist upon a Rolex. ◈ Behind the dial that bears the Rolex emblem lies a movement of extraordinary design and craftsmanship. Whether you choose quartz or the famed Perpetual self-winding movement, it will be housed securely in a block of solid 18 karat gold or stainless steel. Giving you a watch that is seemingly impervious to the rigors of modern civilization. One you can depend on for years and years and years.

LADIES' STAINLESS STEEL AND 18 KARAT GOLD OYSTER PERPETUAL WITH DIAMOND DIAL.

STAINLESS STEEL AND 18 KARAT GOLD LADY DATEJUST.

STAINLESS STEEL AND 18 KARAT GOLD DATEJUST.

STAINLESS STEEL AND 18 KARAT GOLD OYSTER PERPETUAL DATE.



STAINLESS STEEL AND 18 KARAT GOLD OYSTERQUARTZ.

THE JEWELER OF CHOICE FOR SEVEN GENERATIONS.

WOLSTENHOLME
INTERNATIONAL LTD

HEAD OFFICE
Springfield House
Lower Sockshill Road
Darwen, Blackburn, Lancashire,
BB3 0RP, England.

Tel: 01254 760099
Telex: 63251 WOLBRO G
Fax: 01254 873009

DATE: 7 March 1995

COMPANY: Williamson Printing

FAO: Jesse Williamson

FROM: Mike Yates cc HEB/SC/HCM

SUBJECT: WIMS Visit

NO. OF PAGES: 1 (incl. this one)

f a x

If this fax is illegible or incomplete please contact me on 01254 87 47 33

Dear Jesse,

Please convey the thanks of Harry, Helen and myself to all the Williamson Printing staff who gave up so much of their time over the last few days. All the journalists were extremely complimentary of the reception they had received and the quality of input from all concerned in Dallas.

It is going to be difficult to measure the impact that the visit will make on the up-take of the WIMS process initially. But over a period of time, after the articles have been published and absorbed, I'm sure we will begin to see the benefits (sales revenue!!).

In the meantime, at Wolstenholme we know we have a great deal more work to complete in order to provide a suitable water-based ink system which will allow the maximum to be achieved from the WIMS 2 process. The immediate aim in Darwen is to de-brief Steve on the results of the test runs at Printing Research in order that we can progress our laboratory work.

We will be in touch with Bill again soon in order to make arrangements to supply a new batch of coating, based on our new resin formulation, which we think will provide another step improvement in the properties desired.

Hope that the weather in Dallas has returned to normal following our departure and thank you all very much again for your wonderful hospitality.

Kind regards,

Michael J. Yates

WOLSTENHOLME
INTERNATIONAL LTD

HEAD OFFICE
Springfield House
Lower Eccleshill Road
Darwen, Blackburn, Lancashire,
BB3 0RP, England.

Tel: 01254 760039
Telex: 63251 WOLBRO G
Fax: 01254 873009

fax

DATE:	**18TH APRIL 1995**
COMPANY:	**WILLIAMSON PRINTING CORPORATION**
FAO:	**LESLIE - JESSE WILLIAMSON'S SECRETARY**
FROM:	**TRACEY**
SUBJECT:	
NO. OF PAGES:	**4 (incl. this one)**

If this fax is illegible or incomplete please contact me on 01254 874721

Dear Leslie,

Please find attached, Gary Doughty's report as requested.

Tracey

WILLIAMSON PRINTING ROLLS-OUT REVOLUTIONARY NEW PROCESS

Dallas, TEXAS - March 4, 1995. Williamson Printing Corporation has patented a new process that dramatically increases opportunities for graphic expression using metallic inks. This highly advanced technology called WIMS, for Williamson Integrated Metallic Systems, is now being offered by the Dallas-based company throughout the international graphic arts industry. The unique process makes possible true merging of metallics with other inks to achieve heretofore unattainable realism and visual impact in print.

WIMS incorporates proprietary powders, color separation techniques, and press work perfected after years of research and development by Williamson, its Classic Color Corporation subsidiary, and Wolstenholme International of Darwen, Lancashire, England. WIMS has already enhanced award-winning work ranging from duotone to seven color images for such diverse products as ROLEX watches and LEVIS 501 jeans. The innovation is undergoing further development and Williamson expects to soon introduce a second generation, called WIMS II, that incorporates their Litho-FLEX process offering additional printing applications.

FOR MORE INFORMATION CALL
Jesse Williamson, President
Williamson Printing Corp.
214/904-2114

WIMS PROCESS

WHAT ARE THE BENEFITS TO THE END USER - WHAT EXTRA DOES IT GIVE YOU/WHAT ARE THE ADVANTAGES?

1. Realistic reproduction of metallic objects in print.

2. Artistic applications ranging from lifelike to surrealistic, depending on how and where the metallic effects are applied to an image.

3. Walk-by appeal. The reflectance of the printed image changes subtly as the viewing angle changes (somewhat akin to holography). This effect can occur when walking by a point-of-purchase display, when viewing a busmounted advertisement, when driving past a billboard or the simple act of turning a magazine page.

4. Increased attention span. The unique characteristics of metallic ink printing and the range of applications entice the viewer to look more closely at the

reproduction, thereby enhancing viewer memory of the advertised product or service.

5. In the past few years metallic spot colors have become quite popular. These are inks made by mixing given percentages of metallic ink, generally gold or silver and some process or other spot color ink. To use multiple metallic spot colors on a page different inks would have to be formulated and run for each color. With the WIMS system these colors could be emulated using metallic and process screen tint mixes in the same way spot colors are emulated with process tint combinations today.

HOW IT WORKS (IN RELATION TO THE NORMAL FOUR COLOUR PROCESS).

1. Up to two additional separations (gold and/or silver) are produced from the original artwork.

2. The four colour separations are adjusted to accommodate the additional ink being printed in the metallic areas.

3. Since there are up to five colors to be printed in a given area screen moires are a potential concern. Historically, great effort was taken to mask out the least printing (tertiary) color so that only a maximum of four screened colors remained. This step can obviously be avoided with stochastic screening where screen moire is no longer an issue. We have also had great success using conventional screening at fine-line resolutions (175 line or higher) and duplicating the angle in the metallic sep with one of the traditional 4/c angles (gold at the same angle as magenta, silver at the same angle as cyan).

4. Proofing is typically done using DuPont Cromalin. Because of the larger particle size of the Cromalin powder vs the particle size used in offset inks there is a slightly greater sheen in the off-press proof than is achieved on the final printed piece. This is probably more true in areas where gold ink is printing than is silver.

5. Since silver and gold inks are both inherently opaque they are printed as the first-down colors. The remaining 4-color inks are printing in normal sequence though some adjustment of tack-rating may be required.

6. Some care must be taken with the metallic inks once they are out of the can to avoid tarnishing and oxidation of the inks.

IS IT APPLICABLE TO TWO AND THREE COLOR PROCESSES AS WELL?

Yes. There are some highly sophisticated B&W photographic printmaking processes utilizing platinum emulsions. These artistic methods are easily and realistically reproducible using black and gold inks in offset lithography. Old Daguerreotypes have an inherent metallic quality reproducible in this process as well.

DOES THE PRINTING PROCESS CHANGE?

The key issue here is the in-line drying of the metallic inks so the process colors may be successfully overprinted on a single pass through the press. This can be achieved with good ink trapping and overprint measurements by the use of interstation dryers, which force warm air over the sheet as it passes between printing units; leaving a vacant unit between the metallic ink printing unit and the first process ink printing unit to allow more drying time and/or manipulating the properties of the ink vehicle itself to achieve improved ink set-up and drying characteristics. Much work in this regard has been accomplished by Wolstenholme.

HOW MUCH EXTRA DOES IT COST? HOW DIFFICULT/EASY IS IT?

Whether 5 or 6 color (4 color process plus gold and/or silver) there are inherently 25-50% more films, proofing layers, plates and printing units than would be required for straight 4 color process printing. These additional costs can be projected on a fairly linear scale.

Other costs factors have traditionally been the need to manually create the additional (gold and/or silver) separations on expensive high-end computer prepress systems and to print these pieces by "dry-trapping" the process colors over the metallics on press (i.e. running the job through the press twice). In the WIMS system, we have accomplished single-pass (wet-trapping) of the metallic and process inks which results in only half the press time previously required. On the front-end (separation) side, the color selective range tools, alpha channel masking and layering capabilities of Adobe Photoshop 3.0 and other high-end desktop color software, combined with Applescript and other automation tools should help drive down the costs of creating the additional metallic seps. As seven-color (Hi-Fi) separation software tools come to market there are certainly opportunities to use these tools in the creation of metallic color separations also.

Printing Research Inc.
"Mark-less" Super Blue®

May 12, 1995

Mr. Jerry Williamson
Williamson Printing Corp.
6700 Denton Drive
Dallas TX 75235-4497

Dear Jerry,

It was a great pleasure for Steve Garner and me to meet with you, Jesse Williamson and Bill Davis. The following confirms our discussion:

1. **EZ Interstation Flexo Printer/Coater**

   A. Lithoflex as used by PRI to describe its EZ Printer/Coater process is not in conflict with WPC.

   B. PRI is preparing comment for an upcoming coating article in Graphic Arts Monthly relative to the EZ Printer/Coater family, as well as a presentation for the GATF Sheetfed Conference June 25-27, 1995. Both GAM and GATF would like input from WPC. We are suggesting that they both contact you direct.

   C. An order for one Super Blue EZ Interstation Flexo Printer/Coater (your PO 3315) for installation on the first printing unit of your Heidelberg Speedmaster CD 6+LYL is in hand. We anticipate delivery to be approximately 90 days. The price of the coater is to be negotiated. WPC will continue to use PRI's experimental coater installed on the Heidelberg Speedmaster CD 7+L press until PRI has delivered and installed the EZI.

   D. A separate discussion document addressing exclusivity is attached.

2. **Heidelberg Speedmaster CD 6+LYL (Press #3)**

   A. Gloss readings have been taken of the spot water based primer UV overcoat printing job that had various products (golf club, sports shoe, electrical connectors, etc.). The findings are as follows:
      1. Highlight areas – 97 points (toe of shoe)
      2. Heavy black solids – 74 points (electrical connectors)
      3. Solid blue – 84 points (credit card)

We all concluded that this was a classic case of dry back and that we should press forward with the installation of HV on this press to alleviate such dry back problems and also to dry metallic or specialist water based inks in the future.

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

B. The UV lamps in the upsweep of the delivery are to be moved to the lower last horizontal aperture in the extended delivery to:
   1. Minimize spray powder contamination when running spot UV applications
   2. Minimize the effects of sheet flutter on the cure of UV coatings. This needs to be carried out as soon as is convenient to WPC.

3. **Heidelberg Speedmaster CD 8+L (Press #5)**

A. This press is to be supplied UV ready for maximum flexibility. All indications up to this point are that the water based flexo metallic, even when thoroughly dry, will be prone to pile and back trap when applied on early units of a press. The application of UV metallic appears to overcome this problem. The installation of UV throughout would enable WPC to print litho, flexo on any unit, assuming EZ Flexo Printer Coaters were installed, on any substrate at maximized press speeds.

B. PRI is to furnish WPC with a proposal for an 11 lamp 'Cold' UV system for this press.

4. **Web Offset 38 Inch UV Coating System**

A. PRI is to arrange a visit for WPC to Sheffer's installation of a UV coater on a Heidelberg Harris M1000 in Portland, Tennessee.

B. PRI is to prepare a proposal for a joint Sheffer/PRI coater package for installation on WPC's newly proposed press.

We look forward to a continued successful partnership.

Sincerely yours,

John Bird

John Bird
Product Manager

JB:ln

Enclosures:

cc: Jesse Williamson/Williamson Printing Corp.
Bill Davis/Williamson Printing Corp.
Bob Emrick/Williamson Printing Corp.
Steve Garner/PRI
Steve Baker/PRI

WPC/PRI PARTNERING AGREEMENT FOR THE SUPER BLUE EZ INTERSTATION FLEXO PRINTER/COATER

1. PRI agrees to manufacture and supply one Super Blue EZ Interstation Flexo Printer/Coater (PO #3315) on an exclusive basis.

2. Exclusive is to be interpreted to mean that PRI will not supply to printers in the commercial litho offset printing market for a period and territory to be defined.

3. Exclusions include the litho offset printing markets of folding carton, label, and greeting cards.

   A. North America, including Mexico and Canada, will be exclusive to WPC for ~~6~~ 12 months from the date of delivery of the EZ Interstation Flexo Printer/Coater (PO #3315).

   B. Texas and its contiguous states (Louisiana, Arkansas, Oklahoma, New Mexico) and including Arizona and Colorado will be exclusive for a further 6 months, equaling 12 months from the date of delivery of the EZ Interstation Flexo Printer/Coater. 2/1

4. PRI defines 6 months and 12 months exclusivity 3A and 3B to mean PRI will not accept an order for a Super Blue EZ Interstation Flexo Printer/Coater for installation on a printing unit prior to the last printing unit of a press.

5. PRI may request during the term of this agreement to supply to other commercial printers and WPC may not unreasonably decline.

Printing Research, Inc.
"Mark-less" Super Blue®

February 16, 1995

Mr. Jesse Williamson
Williamson Printing Company
6700 Denton Drive
Dallas, Texas 75235

214-904-2100 (Phone)

Dear Jesse,

Further to our meeting of 2-11-95 we confirm the following:

1. We are producing an experimental EZ interstation flexo printer coater for installation on your Heidelberg Speedmaster CD 6 color + LYL, 40 inch press with a target to be installed and operational date of March 15, 1995. This unit for adaptation to the first coating tower of the LYL.

2. The experimental EZ coater will have a coating face length of 39.5 inches. Production models for the Coater position 'L' will have a coating face length of 40.55 inches and for interstation printing unit positions will have a coating face length of not less than 38 inches.

3. The experimental EZ coater will be supplied at no charge to Williamson Printing Company. We anticipate that this unit will be replaced by a production unit at a later date.

4. We have enclosed updated proposals for Super Blue EZ interstation flexo printer coaters for installation on your Heidelberg Speedmaster CD presses.

We look forward to serving your needs and thank you for your interest in our **Super Blue** range of products. For more information please contact us at 1-800-627-5537.

Sincerely yours,

John Bird
Product Manager

JB:tj

cc: Bill Davis - Williamson Printing Company
Howard DeMoore
Steve Garner
Ed Schaffler
Dave Douglas
Steve Baker

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

PRIVILEGE LIST FOR PREPARATION OF APPLICATION
LEADING TO U.S. PAT. 5,630,363 MAY 4, 1995 - AUGUST 14, 1995

Item	Date	Author	Addressee	Claim Description
1	5/16/95	Al Hall - Jones Day Reavis Pogue	Bill Davis	Transmittal letter, advice of counsel and 1st draft patent application
2	5/16/95-7/13/95	Bill Davis	Al Hall	Comments on 1st draft patent application
3	6/30/95	Jones Day Reavis Pogue	WTC	Statement for May 1995 showing intense drafting activities of Hall 5/3/95-5/14/95
4	7/14/95	Al Hall - Jones Day Reavis Pogue	Bill Davis	Transmittal letter with second draft
5	7/15/95-8/13/95	Bill Davis	Al Hall	Comments on 2nd draft patent application
6	7/25/95	Jones Day Reavis Pogue	WTC	Statement for June 1995
7	8/14/95	Al Hall	Bill Davis	Transmittal letter, advice of counsel and final draft patent application

09315796.051801

Printing Research, Inc.
"Mark-less" Super Blue®

May 12, 1995

Mr. Jerry Williamson
Williamson Printing Corp.
6700 Denton Drive
Dallas TX 75235-4497

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1. **EZ Interstation Flexo Printer/Coater**

   A. Lithoflex as used by PRI to describe its EZ Printer/Coater process is not in conflict with WPC.

   B. PRI is preparing comment for an upcoming coating article in Graphic Arts Monthly relative to the EZ Printer/Coater family, as well as a presentation for the GATF Sheetfed Conference June 25-27, 1995. Both GAM and GATF would like input from WPC. We are suggesting that they both contact you direct.

   C. An order for one Super Blue EZ Interstation Flexo Printer/Coater (your PO 3315) for installation on the first printing unit of your Heidelberg Speedmaster CD 6+LYL is in hand. We anticipate delivery to be approximately 90 days. The price of the coater is to be negotiated. WPC will continue to use PRI's experimental coater installed on the Heidelberg Speedmaster CD 7+L press until PRI has delivered and installed the EZI.

   D. A separate discussion document addressing exclusivity is attached.

2. **Heidelberg Speedmaster CD 6+LYL (Press #3)** W000608

   A. Gloss readings have been taken of the spot water based primer UV overcoat printing job that had various products (golf club, sports shoe, electrical connectors, etc.). The findings are as follows:
      1. Highlight areas -- 97 points (toe of shoe)
      2. Heavy black solids -- 74 points (electrical connectors)
      3. Solid blue -- 84 points (credit card)

We all concluded that this was a classic case of dry back and that we should press forward with the installation of HV on this press to alleviate such dry back problems and also to dry metallic or specialist water based inks in the future.

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

B. The UV lamps in the upsweep of the delivery are to be moved to the lower last horizontal aperture in the extended delivery to:
   1. Minimize spray powder contamination when running spot UV applications
   2. Minimize the effects of sheet flutter on the cure of UV coatings. This needs to be carried out as soon as is convenient to WPC.

3. **Heidelberg Speedmaster CD 8+L (Press #5)**

A. This press is to be supplied UV ready for maximum flexibility. All indications up to this point are that the water based flexo metallic, even when thoroughly dry, will be prone to pile and back trap when applied on early units of a press. The application of UV metallic appears to overcome this problem. The installation of UV throughout would enable WPC to print litho, flexo on any unit, assuming EZ Flexo Printer Coaters were installed, on any substrate at maximized press speeds.

B. PRI is to furnish WPC with a proposal for an 11 lamp 'Cold' UV system for this press.

4. **Web Offset 38 Inch UV Coating System**

A. PRI is to arrange a visit for WPC to Sheffer's installation of a UV coater on a Heidelberg Harris M1000 in Portland, Tennessee.

B. PRI is to prepare a proposal for a joint Sheffer/PRI coater package for installation on WPC's newly proposed press.

We look forward to a continued successful partnership.

Sincerely yours,

John Bird

John Bird
Product Manager

JB:ln

Enclosures:

cc: Jesse Williamson/Williamson Printing Corp.
Bill Davis/Williamson Printing Corp.
Bob Emrick/Williamson Printing Corp.
Steve Garner/PRI
Steve Baker/PRI

WPC/PRI PARTNERING AGREEMENT FOR THE SUPER BLUE EZ INTERSTATION FLEXO PRINTER/COATER

1. PRI agrees to manufacture and supply one Super Blue EZ Interstation Flexo Printer/Coater (PO #3315) on an exclusive basis.

2. Exclusive is to be interpreted to mean that PRI will not supply to printers in the commercial litho offset printing market for a period and territory to be defined.

3. Exclusions include the litho offset printing markets of folding carton, label, and greeting cards.

   A. North America, including Mexico and Canada, will be exclusive to WPC for 6 months from the date of delivery of the EZ Interstation Flexo Printer/Coater (PO #3315).

   B. Texas and its contiguous states (Louisiana, Arkansas, Oklahoma, New Mexico) and including Arizona and Colorado will be exclusive for a further 6 months, equaling 12 months from the date of delivery of the EZ Interstation Flexo Printer/Coater.

4. PRI defines 6 months and 12 months exclusivity 3A and 3B to mean PRI will not accept an order for a Super Blue EZ Interstation Flexo Printer/Coater for installation on a printing unit prior to the last printing unit of a press.

5. PRI may request during the term of this agreement to supply to other commercial printers and WPC may not unreasonably decline.

W000610

Williamson Printing Corporation
6700 Denton Drive • Dallas, Texas 75235 • (214) 904-2100

May 30, 1995

Mr. John Bird
Product Manager
Printing Research
10954 Shady Trail
Dallas, TX 75220

Re: Letter of Agreement and Understanding

Dear John:

I am in receipt of your letter dated May 12, 1995, including attachments, regarding the above referenced, representing your initial draft of our Letter of Agreement and Understanding, that you prepared pursuant to our agreement, and I apologize for not responding sooner.

As an excuse, our key folks have been out attending DRUPA, and after returning, things have been rather hectic.

Frankly, I have not had the opportunity to carefully consider your draft and receive input from our folks, so I am not prepared at this time to give you a formal response.

However, I do recognize that there are some terms and certain parts of your draft that need a little adjustment. I will respond specifically just as soon as I have the opportunity.

I do anticipate that we will require changes in your initial draft of our Letter of Agreement and Understanding.

Unfortunately, I will be out of town this week, and it will probably be another few days before I have our draft to you.

In the meantime, if you have any questions, please do not hesitate to get in touch with me, or Jesse, Bill and Bob.

Again, my apologies, and I look forward to our working out this opportunity to our mutual benefit and satisfaction.

Very truly yours,

Jerry Williamson
Chairman of the Board

JBW:db

cc: Jesse Williamson
Bill Davis
Woody Dixon
Bob Emrick

W000611

Williamson Printing Corporation
6700 Denton Drive • Dallas, Texas 75235 • (214) 904-2100

John Bird
Product Manager
Printing Research Inc.
10954 Shady Trail
Dallas, Texas 75220

June 9, 1995

Dear John,

I want to thank you and all the Printing Research people that helped install the additional u v lamps. I think everyone did a great job of meeting dead lines and the press was ready for testing on Sunday morning as promised.

I am sure that you and I learned more on Sundays testing about the LYL and your u v lamps than we ever imagined. The following Monday we put on the first of many forms for Levi (FCB) and the client was quite pleased with our u v gloss. I am pleased to say that we have come along way since our first testing in March.

Now that we have gotten the sheet to cure with (4) lamps at 7,500 IPH I need to hear from you on your plan to get us up to rated speed 13,000 IPH. I apologize for sending this letter so soon after your success but all of our jobs on the Heidelbergs are quoted to average at 10,000 IPH. To have any chance of reaching that average I must be running the press at rated speeds (13,000 IPH).

After all our testing on Sunday I have to wonder if we don't need a little more H V or possibly some I R after the coating unit. Here I worked with you for one day and now I'm an expert. All kidding a side I do need to know what your next plans are so I can block out testing time for Printing Research.

Very Truly Yours

Jim Johnson

CC: J. Williamson
J. Williamson
B. Emrick
B. Davis

Williamson Printing Corporation
6700 Denton Drive • Dallas, Texas 75235 • (214) 904-2100

June 12, 1995

Mr. John Bird
Product Manager
Printing Research
10954 Shady Trail
Dallas, TX 75220

Re: Letter of Agreement and Understanding

Dear John:

With respect to the above referenced, enclosed please find my draft responding to your letter dated May 12, 1995, including the "Exclusivity Agreement."

First of all, I do apologize for my belated response, but I have just recently had a chance to visit with our folks to get their input on this transaction.

After receiving their input on what they believe has been agreed upon, I have attempted to present that position in response to your original "first draft."

Please note that I have revised your "Exclusivity Agreement" document somewhat, and it does include "liquidated damages" provision, as well as how we should go about resolving any misunderstanding under the terms of this arrangement.

Speaking on behalf of all of our folks here at WPC, we are very much excited about the opportunities before us, and our establishing a good, long and mutually beneficial business relationship.

Again, please accept my apologies for the delay, and I am looking forward to hearing from you at your earliest convenience.

In the meantime, if you have any questions, please do not hesitate to give me a call.

Very truly yours,

Jerry

Jerry Williamson
Chairman of the Board

enclosures

cc: Jesse Williamson, WPC
Bill Davis, WPC
Bob Emrick, WPC
Jim Johson, WPC
Steve Garner, PRI
Steve Baker, PRI

W000613

Williamson Printing Corporation
6700 Denton Drive • Dallas, Texas 75235 • (214) 904-2100

June 12, 1995

Mr. John Bird
Product Manager
Printing Research
10954 Shady Trail
Dallas, TX 75220

Re: Letter of Agreement and Understanding

Dear John:

As promised in my letter of May 30, regarding the above referenced, I will attempt to address the issues set forth in your letter to me dated May 12, 1995. I will address them in the order in which you have outlined in your letter.

Please note my suggestions for the final draft of the Letter of Agreement and Understanding between Printing Research, Inc. (PRI) and Williamson Printing Corporation (WPC), as follows:

1. **EZ Interstation Flexo Printer/Coater**

   A. Lithoflex - Although your statement is correct, and presents no objection from us, our patent and copyright attorney has advised us that the term "Lithoflex" is already being used by another company.

   B. GAM and GATF - We choose not to participate as you have outlined at this time, for we feel it is somewhat premature, and would not be in our best interest. Consequently, we have declined to participate in the GATF Sheetfed Conference panel.

   C. Super Blue EZ Interstation Flexo Printer/Coater (EZI) - The first such unit which has been installed on the CD 7+L press, is an experimental model that should not count as being one of the units involved in our transaction. We believe that the agreement we reached calls for the first, final design, of the EZI, including all its final features, was suppose to be installed on the 6/C CD 6+LYL, at no charge with the expected installation time to be ~~mid-August~~ Sept. 1995. The second such unit, final design, including all final features, etc., is to be offered to WPC at one-half of the list price, as soon as possible. This is the way we understood the agreement, and hopefully this clarifies any misunderstanding.

Apparently the WPC PO 3315 that has been issued in your favor, should read "no charge."

D. Exclusivity Agreement - I will address this document and make my comments on a separate attachment, as it has been presented by you. Basically, I believe we originally discussed having more time than you have indicated.

2. **Heidelberg Speedmaster CD 6+LYL (Press #3)**

A. Gloss Readings - It is my understanding that several changes have been made and tested this past weekend, Saturday and Sunday, June 3 and 4, and we have seen some improvement in the "gloss back." However, we are still not achieving our expectations, and it is not performing at an acceptable level, such as achieving expected press speeds, etc.

B. UV Lamps - Since your PRI document was written on May 12, 1995, further developments have taken place which change the possible plan of action to achieve the minimal spray powder contamination and sheet flutter effects.

In the June 3 and June 4, 1995 testing, we added 4 lamps in the lower horizontal aperture of the extended delivery. At this time, it is not clear what needs to be done to achieve curing of the total sheet surface at maximum press speeds with no spray power contamination.

We will continue working together to achieve this goal.

3. **Heidelberg Speedmaster CD 8+L (Press #8)** 4

A. Ordered "UV" Ready - This press has been ordered as suggested.

B. PRI Proposal to WPC - After we have achieved a "successful test," PRI is to furnish WPC with a proposal, including attractive, discounted prices.

4. **Web Offset 38 Inch UV Coating System**

   A. PRI is to arrange a visit for WPC to Sheffer's installation - We agree.

   B. PRI Is To Prepare A Proposal For Joint Sheffer/PRI Coater Package - We agree.

As indicated above, enclosed please find the attachment addressing our "Exclusivity Agreement," for your review.

I hope my comments will be well received, and integrated into our final draft.

In the meantime, we, too, look forward to a continuing successful business relationship.

If you have any questions, please do not hesitate to give me a call.

Very truly yours,

Jerry Williamson
Chairman of the Board

JBW:db

cc: Jesse Williamson, WPC
Bill Davis, WPC
Bob Emrick, WPC
Jim Johson, WPC
Steve Garner, PRI
Steve Baker, PRI

Williamson Printing Corporation

June 12, 1995

EXCLUSIVITY AGREEMENT

Williamson Printing Corporation (WPC) and Printing Research, Inc. (PRI) have entered into an agreement for the Super Blue EZ Interstation Flexo Printer/Coater (EZI), and the purpose of this document is to set out the perimeters of that agreement, including the granting of "Exclusive Rights" between the parties.

A brief description outlining the terms of this agreement is set out as follows:

1. PRI agrees to manufacture and supply to WPC one EZI at no cost to WPC. This unit shall not be an experimental unit, but one that has been developed to final form, tested, approved for commercial operation and accepted by WPC. PRI grants WPC "exclusive rights" to this unit within the terms and conditions set out here below.

2. These "exclusive rights" mean that, with respect to EZI, PRI will not sell, supply, assist or, help to install to or for any other commercial printing company, engaged in commercial printing, within the territorial markets, and during the time frames as set out here below:

   A. National Market - This market is to include all of North America, including Canada, Mexico and the U.S., and WPC is granted these "exclusive rights" for a period of one year, beginning from the date the referenced EZI has been accepted by WPC.

   B. Regional Market - This market is to include Texas and the continuous states, Louisana, Arkansas, Oklahoma, New Mexico, and, also to include the states of Arizona and Colorado, and WPC is granted these "exclusive rights" for a period of two years, beginning from the date the referenced EZI has been accepted by WPC.

3. PRI will not accept an order, sell or install the EZI during the "exclusive rights" time period as set out above, by installing the EZI on a printing unit located before, or ahead of, the last printing unit of the press.

4. The "exclusivity agreement" shall exclude those printing firms that are exclusively in the market of producing "folding cartons," "labels," and "greeting cards." This will represent an exception to the "exclusivity rights" as granted WPC from PRI.

W000617

EXCLUSIVITY AGREEMENT (cont.)

5. PRI agrees to grant WPC "exclusive rights" for producing products identified and defined as "trading cards" and "pogs," for a period of ten years, and covering a world-wide territory.

6. Should PRI desire revisions to the terms of this agreement, it shall request such revisions in writing to WPC, and WPC agrees to respond to such a request on a timely basis, and not withhold approval unreasonably.

7. Should either party violate the terms of this agreement, the party guilty of the violation shall pay the other party liquidated damages in the sum of $250,000. Such liquidated damages shall be paid in U.S. dollars at the home office of the appropriate party in Dallas, County, Texas, within thirty days of receiving written notice of such violation.

8. Should any disagreement arise out of this agreement, and the parties cannot reach an agreeable settlement, or an acceptable understanding, both parties agree to have a third-party, unbiased arbitrator, chosen to settle the issue/issues. After such arbitration, if the parties still remain in disagreement, and legal action is required, the jurisdiction for such legal action shall be an appropriate court located in Dallas, County, Texas.

Printing Research, Inc.
"Mark-less" Super Blue®

July 18, 1995

Mr. Jerry Williamson
Williamson Printing Co.
6700 Denton Dr.
Dallas, TX 75235

214-904-2100 (Phone)

Dear Jerry,

Reference your letter of June 12, 1995. As of todays date it has not proved possible to get the necessary people together to discuss its content.

We are in any case continuing to give an exclusive to WPC in the spirit of our partnering and trust that we will be able to react to your letter in the near future.

We apologize for the delay.

Sincerely yours,

John Bird
Product Manager

WB:th

cc: Jesse Williamson - WPC
Bill Davis - WPC
Bob Emrick - WPC
Jim Johnson - WPC
Howard DeMoore - PRI
Steve Garner - PRI

W000625

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

Williamson Printing Corporation
6700 Denton Drive • Dallas, Texas 75235 • (214) 904-2100

July 21, 1995

Mr. John Bird
Product Manager
Printing Research, Inc.
10954 Shady Trail
Dalls, TX 75220

Re: Letter of Agreement and Understanding

Dear John:

I am in receipt of your letter dated July 18, 1995, with respect to the above referenced, and referencing my letter of June 11, 1995.

I do appreciate your acknowledging receipt of my letter, and apologizing for not responding and finalizing our Agreement and Understanding, but, far too much time has passed. Please give this your immediate attention, and let us try to bring this matter to "closure."

Again, thank you, and please get back with us at your earliest convenience.

Incidentally, I will be out of the city for two weeks, planning to be back in the office Monday, August 7, 1995, but you can continue this dialogue with any of my other colleagues here at WPC.

Thank you in advance for your cooperation, and please let me know if you have any questions.

Very truly yours,

Jerry Williamson
Chairman of the Board

JBW:db

cc: Howard DeMoore
Steve Garner
Bill Davis
Bob Emrick
Jim Johnson
Jesse Williamson

W000626

Williamson Printing Corporation
6700 Denton Drive • Dallas, Texas 75235 • (214) 904-2100

August 11, 1995

Mr. John Bird
Product Manager
Printing Research, Inc.
10954 Shady Trail
Dallas, Texas 75220

Re: Letter of Agreement and Understanding

Dear John:

Pursuant to our meeting on the afternoon of Thursday, August 10, 1995, this letter will serve to confirm those matters discussed regarding the above referenced, and specifically the draft of my letter concerning same subject dated June 12, 1995.

We reviewed the June 12 letter, referenced, in the same order as presented in the letter, I will set forth here below our comments on those matters in the same order as follows:

1. **EZ Interstation Flexo Printer/Coater**

   A. Lithoflex - We are in agreement here.

   B. GAM and GATF - We are in agreement here.

   C. Super Blue EZ Interstation Flexo Printer/Coater (EZI) - We are in agreement here.

   D. Exclusivity Agreement - Our comments and discussion on this agreement will be outlined in more detail later on in this letter.

2. **Heidelberg Speedmaster CD 6+LYL (Press #3)**

   A. Gloss Readings - The "gloss back" issue has been addressed in the interim, and a final determination shall be made after our "final testing," which is scheduled for next week.

B. UV Lamps - The "UV Lamp" issue has been addressed in the interim, and a final determination shall be made after our "final testing," which is scheduled for next week.

3. **Heidelberg Speedmaster CD 8+L (Press #5)**

A. Ordered "UV" Ready - This press has been ordered as suggested being "UV prepped."

B. PRI Proposal to WPC - This press has been "dressed out" and "prepped" with UV interstation drying and is to be tested next week as scheduled.

4. **Web Offset 38 Inch UV Coating System**

A. PRI is to arrange a visit for WPC to Sheffer's installation - This has not been accomplished yet, but will be scheduled as soon as is mutually convenient.

B. PRI Is To Prepare a Proposal For Joint Sheffer/PRI Coater Package - This has not been accomplished yet, but PRI will prepare and present such a proposal just as soon as possible, and no later than one week from this date.

(1., D.) Exclusivity Agreement (referenced above)

1. We are in agreement, as stated.

2. Terms on the "Exclusive Rights" shall be modified to allow PRI to accept an order from another printing company, but PRI shall not deliver or install the items ordered until the terms of the "Exclusivity" have expired;

A. National Market - We proposed a compromise from one year to nine months.

B. Regional Market - We proposed a compromise from two years to eighteen months.

3. It was proposed to modify this clause to read that PRI will be allowed to accept orders for their equipment, but not to deliver and/or install it during the "exclusivity term" covering the "time period," as referenced in paragraph #2 above.

4. We are in agreement to this clause as written.

5. Recognizing the basis of your objections, we suggest modifying this clause to read that PRI agrees to grant WPC "exclusive rights" for the products defined as "trading cards" and "pogs" under the same terms as set out above in paragraph #2, and shall not sell to another printing company that is currently producing products, either knowlingly or on the basis of "should have known."

6. We are in agreement to this clause as written.

7. You expressed some concern about this clause covering "liquidated damages" and we agreed that you would discuss with your colleagues at PRI concerning the reasons why we believe this clause should be included in our letter of agreement. Liquidated amount would simply establish a fixed amount of damages should either party violate the terms of this agreement. We have agreed to lower the amount of "liquidated damages" to $100,000. We also determined that the liquidated damages would only be effective after the arbitrator had ruled, as set out below in paragraph #8. Basically, this allows for an orderly, expiditious and cost saving way of settling disputes, if any, that may arise.

8. We are in agreement to this clause as written.

Assuming that the testing is completed as we have scheduled for next week, we have agreed to finalize this "Letter of Agreement and Understanding" no later than August 21, 1995.

Incidently, another issue that has arisen which was not discussed during our meeting, was the availability of services, including parts, on a 24 hours a day, 7 days a week schedule. As you know, during our recent working together, from time to time PRI has been unable to solve a service problem due to your personnel not being able to obtain the necessary parts during off hours.

As you can appreciate, in order for us to reach our mutual goals and objectives, and to achieve these in an efficient and cost saving fashion, it will be absolutely necessary that we reach a satisfactory solution to this "parts availability problem." Of course, one of the main reasons we chose to enter into this arrangement with you was that the company was located here locally and close to our facilities, which gave us great comfort in your being able to provide us the necessary support, particularly in emergency situations and "off hour" times. Please give me your response and recommended solution on this particular issue just as soon as possible.

I hope that the above faily well outlines and confirms matters discussed in our meeting, but, if not, please let me know immediately. All of us here at WPC are still very much looking forward to our continuing our "business partnership and alliance."

I want to take this opportunity to thank you for your attention and professional courtesy, and if you have any questions or comments, please do not hesitate to give me a call.

Very truly yours,

Jerry Williamson

Jerry Williamson

cc: Jesse Williamson, WPC
Bill Davis, WPC
Bob Emrick, WPC
Jim Johnsonm, WPC
Steve Garner, PRI
Steve Baker, PRI

Printing Research, Inc.
"Mark-less" Super Blue®

August 22, 1995

Mr. Jerry Williamson
Williamson Printing Corporation
6700 Denton Drive
Dallas TX 75235

214-904-2100 (Phone)

Dear Jerry,

Referring to your letter of August 11, 1995, we respond to the pertinent points as follows:

1. We are in agreement.
2. We are in agreement.
3. **Heidelberg Speedmaster CD102**, 8+L (Press #5).
   A proposal for 'Cold' UV throughout is enclosed. (Proposal Number 095818).
4. **Web Offset**, 38 inch UV Coating System.
   A proposal for a Super Blue 'Cold' UV Drying System and a Scheffer Coating System is enclosed. (Proposal Number 095822).

Exclusivity Agreement:

1. We are in agreement.
2. Agreed, except that we would like to stay witn:
   A. National Market - 6 months.
   B. Regional Market - 12 months.
3. ~~Proposal is enclosed.~~ ok will
4. Proposal is enclosed. # 9/
5. We cannot agree to this clause since we have no way of knowing what our customers may wish to print and cannot dictate what they print.
6. We are in agreement.
7. We cannot agree to this clause:
   Liquidated damages and/or any lawsuit is simply not true to the spirit of our intentions.
8. We are in agreement with this clause, although we do not see the need for an 'unbiased aribtrator.' We do however feel uncomfortable with this clause since it is making our 'Partnering Agreement' more of a legal document than originally intended.

W000631

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

Servicing Issue:

While we are committed to providing WPC with availability of our service team 24 hours a day, there will be cases when we will not have a man in Dallas able to instantly react to your need. Our service team are all available through pagers and will at least be able to advise over the telephone 24 hours a day. As for spare parts, we recommend a spare parts list that WPC can purchase and avert most difficulties in getting a needed part.

We look forward to a continuing 'Partnering in Progress' and are hopeful that this letter answers all outstanding issues.

Sincerely yours,

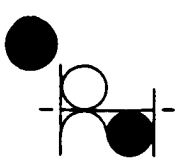
John Bird
Product Manager

JB:ln

Enclosures:

cc: Jesse Williamson/WPC
Bill Davis/WPC
Bob Emrick/WPC
Jim Johnson/WPC
Steve Garner
Steve Baker

JESSE WILLIAMSON



Printing Research, Inc.
"Mark-less" Super Blue®

August 22, 1995

Mr. Jerry Williamson
Williamson Printing Corporation
6700 Denton Drive
Dallas TX 75235

214-904-2100 (Phone)

Dear Jerry,

Referring to your letter of August 11, 1995, we respond to the pertinent points as follows:

1. We are in agreement.
2. We are in agreement.
3. Heidelberg Speedmaster CD102, 8+L (Press #5).
   A proposal for 'Cold' UV throughout is enclosed. (Proposal Number 095818).
4. Web Offset, 38 inch UV Coating System.
   A proposal for a Super Blue 'Cold' UV Drying System and a Scheffer Coating System is enclosed. (Proposal Number 095822).

Exclusivity Agreement:

1. We are in agreement.
2. Agreed, except that we would like to stay with:
   A. National Market - 6 months.
   B. Regional Market - 12 months.
3. Proposal is enclosed.
4. Proposal is enclosed.
5. We cannot agree to this clause since we have no way of knowing what our customers may wish to print and cannot dictate what they print.
6. We are in agreement.
7. We cannot agree to this clause:
   Liquidated damages and/or any lawsuit is simply not true to the spirit of our intentions.
8. We are in agreement with this clause, although we do not see the need for an 'unbiased aribtrator.' We do however feel uncomfortable with this clause since it is making our 'Partnering Agreement' more of a legal document than originally intended.

W000633

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

Servicing Issue:

While we are committed to providing WPC with availability of our service team 24 hours a day, there will be cases when we will not have a man in Dallas able to instantly react to your need. Our service team are all available through pagers and will at least be able to advise over the telephone 24 hours a day. As for spare parts, we recommend a spare parts list that WPC can purchase and avert most difficulties in getting a needed part.

We look forward to a continuing 'Partnering in Progress' and are hopeful that this letter answers all outstanding issues.

Sincerely yours,

John Bird
Product Manager

JB:ln

Enclosures:

cc: Jesse Williamson/WPC
Bill Davis/WPC
Bob Emrick/WPC
Jim Johnson/WPC
Steve Garner
Steve Baker

Printing Research, Inc.
"Mark-less" Super Blue®

095818
Williamson Ptg. Corp.
August 18, 1995

SUMMARY OF PROPOSAL

for

HEIDELBERG SPEEDMASTER CD 8CT / 40

QTY	EQUIPMENT	PRICE
1	SUPER BLUE TWELVE LAMP 'COLD' UV DRYING SYSTEM (SCU)	$338,728.
	TOTAL EQUIPMENT (FOB Factory)	**$338,728.**

OPTIONS

MEMORY	$ 9,000.
RAMPING	$16,200.

ESTIMATE: INSTALLATION AND TRAINING $25,000.

QTY	RECOMMENDED SPARE PARTS	UNIT PRICE	EXTENSION
12	SPARE UV LAMPS	338.	$ 4,056.
4	FILTER TUBES	587.	2,348.
	TOTAL RECOMMENDED SPARE PARTS		**$ 6,404.**

'Proposal', 'Sales Terms and Conditions' on Reverse Side and 'Terms of Proposal' Accepted by:

NAME _____

TITLE _____

SIGNATURE _____

DATE _____

W000635

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

Printing Research, Inc.
"Mark-less" Super Blue®

SCU 095818
Williamson Ptg. Corp.
August 18, 1995

PROPOSAL

for

SUPER BLUE SCU™ 'COLD' UV DRYING SYSTEM

PRESS	COLOR/SIZE	LAMPS	RATING	PRICE
HEIDELBERG SPEEDMASTER 102CD 8+L	**8CT / 40**	**12**	**300 watt/inch**	**$ 338,728.**

One lamp each between printing units 1/2, 2/3, 3/4, 4/5, 5/6, 6/7, 7/8, 8/CT and four in the delivery.

OPTIONS:

Memory	$ 9,000.
Ramping	$ 16,200.

RECOMMENDED SPARE PARTS:

UV Lamps (each)	$ 338.
Filter Tubes (each)	$ 587.

PURPOSE

Curing (drying) UV inks, varnishes or coating on sheet or web fed presses.

APPLICATION

Paper, Card, Carton Board, Corrugated, Plastic, Foil

CONFIGURATION

Curing heads are linked to impression of press and automatically switch to standby mode when press is off impression for five minutes. If no further action is taken, then lamps automatically turn off; if the press is put back into impression, the lamps automatically return too full power.

Standard Control Unit contains all necessary switchgear and controls to provide individual lamp selection, full and reduced individual power switching, elapsed life meters, lamp indicators and emergency stop button.

Main power transformer, capacitor banks and closed loop exchanger plant are supplied as floor standing modules. Full safety interlock circuits are fitted throughout. Ozone and heat extraction from the press are not normally required.

SPECIAL FEATURES

- 'Cold' UV Dryer controls integrated with press controls
- 'Panel Ajar/Catwalk' warning to make lamps inoperable
- LED conductivity with diagnostic meter for deionized water system
- Heat exhaust on all between unit stations

Enclosures: **Sales Terms and Conditions**
Terms of Proposal

W000636

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

Printing Research, Inc.
"Mark-less" Super Blue®

WCCU 095822
Williamson Printing Corp.
August 22, 1995

PROPOSAL
for
SCHEFFER 4 ROLL WEB COATING & SUPER BLUE WEB 'COLD' UV DRYING SYSTEM

One 38 inch UV coating system suitable for speeds up to 1200 ft/in. - two side application. Features for each side application include but are not limited to the following:

1. **FOUR ROLL DESIGN COATER TRAIN**

   A. EPDM cover pan roller of 85 durometer, 0-85 RPM with running mechanical impression adjustment to transfer cylinder. Pan roller is variable speed controlled with "skewing" capability for added film regulation. Sunday drive with ¾ H.P. for continuous movements of pan roller when press is down. Pan roll has quick change clam shell bearing arrangement.

   B. Stainless steel anilox transfer cylinder with 200 cell "Roto-Flo" design to facilitate even application of coating. Doctor blade assembly, adjustable on the run from gear to operator side included. Sunday drive similar to pan roll drive included to keep wet cylinders moving. Anti-sling ring assemblies with running adjustments at ends of cylinder transfer is sized larger for optimum material transfer.

   C. Magnetic plate cylinder, undercut to be discussed and determined by customer based upon type and style of plate to be used. Grid pattern for plate positioning included.

   D. Solid nickel plated impression cylinder.

2. Both plate and impression cylinders are adjustable on the fly from gear to operator side up to .005".

3. Stainless steel coater pan with double diaphragm recirculating pump/tank and flow control. Internal components designed to operate with U.V. coating material.

4. Motorized 360° circumferential register and ± ¼" motorized sidelay. Adjustments can be made at coater or at remote station pre-wired and provided by Scheffer. Location to be determined by customer.

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

5. Tandler gear box with pneumatic clutch with on/off indicator.

6. Weight of each side coater - approximately 10,000 pounds.

7. On/Off pneumatic impression of plate and impression cylinders.

8. HSP requirements: Running 4 HSP.
Braking 10 HSP.

9. Two roll, chill roll stand with variable speed control. Rotary unions and piping included. Drive connection included.

10. Main support structure, drive connections and guarding. Four sided work platform, handrails and ladder and all necessary lead in/lead out idler rollers included. These idler rollers are multi-adjustable.

11. A. Six each curing heads linked to impression of press and automatically switch to standby mode when press is off impression for five minutes. If no further action is taken, then lamps automatically turn off; if the press is put back into impression, the lamps automatically return to full power.

Standard Control Unit contains all necessary switchgear and controls to provide individual lamp selection, full and reduced individual power switching, elapsed life meters, lamp indicators and emergency stop button.

Main power transformer, capacitor banks and closed loop heat exchanger plant are supplied as floor standing modules. Full safety interlock circuits are fitted throughout. Ozone/heat extraction from the UV dryer tunnel are not normally required.

B. Special features include:
- Water Cooled Shutters
- Water Cooled Heat Sink Plate
- LED conductivity with diagnostic meter for deionized water system
- Heat exhaust on each UV lamp head

PRICE: $697,714 for complete two side application.

Option if installed on an existing press: Web severer and web break detectors $6,600.

SHIPPING INSTALLATION: Estimated at $20,000-$40,000. Start-up and training included.

SPARE PARTS: Recommendations: To be advised.

PRICING:

Prices include standard support structure, drive take-off from the press, guarding and crating.

Prices exclude any service charge for the installation, start-up, web-up platforms, ladders or handrails.

TERMS:

50% with order.
40% prior to shipment.
10% net thirty days from date of shipment.

SHIPMENT:

16-20 weeks.

The above shipping schedule is based upon existing backlogs. The actual shipping schedule date will be confirmed upon receipt of order and the down payment.

All equipment "ex-works" Merrillville, Indiana

PRINTING RESEARCH, INC.
TERMS OF PROPOSAL

1. PRICING: Prices are based on clear access to and within the press to install our standard equipment. Any variance, deviation or encumbrance will be subject to price review. Installation is priced separately and all electrical, plumbing, engineering or other contracted services including materials to prepare the site for installation are the customer's responsibility.

2. TERMS: 40% with purchase order and signed sales contract. 50% upon notification of readiness for shipment. Please note in order to release shipments, payment must be received. Balance 30 days after installation or 45 days from delivery, whichever is earlier. Please Note, when payment for a unit is due, it is payable without regard to the status of another unit which might be purchased at the same time.

3. WARRANTY CONDITIONS: 12 months on defective parts. EXCEPTION: UV Lamps - Guaranteed for 1000 operating hours. If failure occurs prior to 1000 hours of operation and after seller's inspection, proves to be due to manufacturing defects, 100% credit or a free replacement lamp will be provided.

4. CONDITIONS OF SALE: This quotation is subject to our "General Terms and Conditions for Coating and Drying Systems" on reverse of Summary. The company accepts no liability whatsoever for any loss of production, loss of profit or other loss to customer in connection with the equipment and/or its installation.

5. STANDARD DELIVERY: Is usually 12 - 16 weeks from receipt of official order and first stage payment. FOB Factory.

6. INSTALLATION AND TRAINING: $575.00 per day per man plus airfare. ($85 per hour if work day exceeds 8 hours).

7. ELECTRICAL STANDARD: 220/240, 460/480 volts, 3 or 4 wire (Delta or Wye) 60 hz. Existing electrical services must be specified on the purchase order.

   Notes: A. AB1 Air Blanket 1 Infrared Dryer BV BacVac Vacuum Transfer System standard electrical supply voltage 220/240 volts.
   B.ABII Air Blanket 11 Infrared Dryer standard electrical supply voltage 460/480 volts.
   C.HV High Velocity Hot Air Dryer standard electrical supply voltage 460/480 volts.
   Electrical service other than that quoted above may cause a delay and an additional charge for a transformer.

8. SERVICES TO BE PAID FOR AND PROVIDED BY CUSTOMER:

   GENERAL: Buyer agrees to prepare the press for installation, which may require relocating accessories including spray powder units, static bars, etc. Any relocation or modification of accessories will be the sole responsibility of the buyer. In the event Printing Research (P.R.I.) technicians are requested to modify or relocate any accessory, there will be an additional charge assessed to the buyer based on P.R.I.'s applicable hourly rate. P.R.I. will not warranty the performance of any accessories moved. When applicable, the buyer will supply clean, dry compressed air.

   HV/PBC/IR/UV/EZ/BV/VH

   The customer agrees to supply and pay for electricians, plumbers, engineering services and all materials required to install and interconnect (if necessary) the equipment being supplied by Printing Research, Inc. The electrical, plumbing, water, compressed air and refrigeration lines being supplied by the customer are to be connected to the equipment being installed. Printing Research, Inc. is responsible for activating the installed systems and will supply the labor necessary in that regard.

9. ADDITIONAL SPECIFIC SERVICES TO BE PROVIDED BY CUSTOMER:

   HV (High Velocity Hot Air Dryer)
   - Provide duct work and duct work extraction.
   - Provide raised walkplates to cover air supply and return lines lying on the floor.

   PBC (Plate Blanket Coater)
   - Provide coating and cleaning agent for testing and training.
   - 55 gallon barrel of hydraulic oil
   - Compressed air line up to 100 p.s.i.
   - Lifting gear to place coater on press
   - Provide relief plate to conduct plate coating test.

   UV (Water Cooled and 'Cold' UV)
   - Duct work and extraction, if required
   - Clean, dry compressed air adjacent to within 10 feet of the location of lamps; compressor must be able to deliver 0.5 c.f.m. per linear inch per lamp at up to 100 p.s.i.
   - The chilling system is not precharged with refrigerant due to the variability of installation requirements and is priced accordingly. The customer agrees to pay for all refrigerant needed to complete the installation.

   'COLD' UV
   - Provide 25-50 gallons of non-charcoal filtered steam distilled water.
   - It is necessary to arrange for a local service water purification contract.

   EZ (EZ Impression Cylinder Coater)
   - Compressed air line up to 100 p.s.i.
   - Provide coating and cleaning agent for testing and training.
   - Grippers and gripper bar assemblies need to be cleaned and tuned prior to installation.

   W000640

   VH (Vent-A-Hood)
   - Provide all duct work including penetrating and resealing the ceiling and/or roof and electrical interconnections to other equipment.

10. LOCAL INSPECTIONS, PERMITS OR CERTIFICATIONS:
    - Any additional local inspections, permits or certifications and the costs thereof are the sole responsibility of the buyer.

Prices are firm 60 days from the date of this proposal. 03/10/95

Printing Research, Inc.
"Mark-less" Super Blue®

August 22, 1995

Mr. Jerry Williamson
Williamson Printing Corporation
6700 Denton Drive
Dallas TX 75235

214-904-2100 (Phone)

Dear Jerry,

Referring to your letter of August 11, 1995, we respond to the pertinent points as follows:

1. We are in agreement.
2. We are in agreement.
3. Heidelberg Speedmaster CD102, 8+L (Press #5).
   A proposal for 'Cold' UV throughout is enclosed. (Proposal Number 095818).
4. Web Offset, 38 inch UV Coating System.
   A proposal for a Super Blue 'Cold' UV Drying System and a Scheffer Coating System is enclosed. (Proposal Number 095822).

Exclusivity Agreement:

1. We are in agreement.
2. Agreed, except that we would like to stay with:
   A. National Market - 6 months.
   B. Regional Market - 12 months.
3. Proposal is enclosed.
4. Proposal is enclosed.
5. We cannot agree to this clause since we have no way of knowing what our customers may wish to print and cannot dictate what they print.
6. We are in agreement.
7. We cannot agree to this clause:
   Liquidated damages and/or any lawsuit is simply not true to the spirit of our intentions.
8. We are in agreement with this clause, although we do not see the need for an 'unbiased aribtrator.' We do however feel uncomfortable with this clause since it is making our 'Partnering Agreement' more of a legal document than originally intended.

W000641

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

Servicing Issue:

While we are committed to providing WPC with availability of our service team 24 hours a day, there will be cases when we will not have a man in Dallas able to instantly react to your need. Our service team are all available through pagers and will at least be able to advise over the telephone 24 hours a day. As for spare parts, we recommend a spare parts list that WPC can purchase and avert most difficulties in getting a needed part.

We look forward to a continuing 'Partnering in Progress' and are hopeful that this letter answers all outstanding issues.

Sincerely yours,

John Bird
Product Manager

JB:ln

Enclosures:

cc: Jesse Williamson/WPC
Bill Davis/WPC
Bob Emrick/WPC
Jim Johnson/WPC
Steve Garner
Steve Baker

Printing Research, Inc.
"Mark-less" Super Blue®

095818
Williamson Ptg. Corp.
August 18, 1995

SUMMARY OF PROPOSAL

for

HEIDELBERG SPEEDMASTER CD 8CT / 40

QTY	EQUIPMENT	PRICE
1	SUPER BLUE TWELVE LAMP 'COLD' UV DRYING SYSTEM (SCU)	$338,728.
	TOTAL EQUIPMENT (FOB Factory)	**$338,728.**

OPTIONS

	MEMORY	$ 9,000.
	RAMPING	$16,200.

ESTIMATE: INSTALLATION AND TRAINING $25,000.

QTY	RECOMMENDED SPARE PARTS	UNIT PRICE	EXTENSION
12	SPARE UV LAMPS	338.	$ 4,056.
4	FILTER TUBES	587.	2,348.
	TOTAL RECOMMENDED SPARE PARTS		**$ 6,404.**

'Proposal', 'Sales Terms and Conditions' on Reverse Side and 'Terms of Proposal' Accepted by:

NAME _____

TITLE _____

SIGNATURE _____

DATE _____

W000643

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

Printing Research, Inc.
"Mark-less" Super Blue®

SCU 095818
Williamson Ptg. Corp.
August 18, 1995

PROPOSAL

for

SUPER BLUE SCU™ 'COLD' UV DRYING SYSTEM

PRESS	COLOR/SIZE	LAMPS	RATING	PRICE
HEIDELBERG SPEEDMASTER 102CD 8+L	**8CT / 40**	**12**	**300 watt/inch**	**$ 338,728.**

One lamp each between printing units 1/2, 2/3, 3/4, 4/5, 5/6, 6/7, 7/8, 8/CT and four in the delivery.

OPTIONS:

Memory	$ 9,000.
Ramping	$ 16,200.

RECOMMENDED SPARE PARTS:

UV Lamps (each)	$ 338.
Filter Tubes (each)	$ 587.

PURPOSE

Curing (drying) UV inks, varnishes or coating on sheet or web fed presses.

APPLICATION

Paper, Card, Carton Board, Corrugated, Plastic, Foil

CONFIGURATION

Curing heads are linked to impression of press and automatically switch to standby mode when press is off impression for five minutes. If no further action is taken, then lamps automatically turn off; if the press is put back into impression, the lamps automatically return too full power.

Standard Control Unit contains all necessary switchgear and controls to provide individual lamp selection, full and reduced individual power switching, elapsed life meters, lamp indicators and emergency stop button.

Main power transformer, capacitor banks and closed loop exchanger plant are supplied as floor standing modules. Full safety interlock circuits are fitted throughout. Ozone and heat extraction from the press are not normally required.

SPECIAL FEATURES

- 'Cold' UV Dryer controls integrated with press controls
- 'Panel Ajar/Catwalk' warning to make lamps inoperable
- LED conductivity with diagnostic meter for deionized water system
- Heat exhaust on all between unit stations

Enclosures: Sales Terms and Conditions
Terms of Proposal

W000644

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

Printing Research, Inc.
"Mark-less" Super Blue®

WCCU 095822
Williamson Printing Corp.
August 22, 1995

PROPOSAL
for
SCHEFFER 4 ROLL WEB COATING & SUPER BLUE WEB 'COLD' UV DRYING SYSTEM

One 38 inch UV coating system suitable for speeds up to 1200 ft/in. - two side application. Features for each side application include but are not limited to the following:

1. **FOUR ROLL DESIGN COATER TRAIN**

   A. EPDM cover pan roller of 85 durometer, 0-85 RPM with running mechanical impression adjustment to transfer cylinder. Pan roller is variable speed controlled with "skewing" capability for added film regulation. Sunday drive with ¾ H.P. for continuous movements of pan roller when press is down. Pan roll has quick change clam shell bearing arrangement.

   B. Stainless steel anilox transfer cylinder with 200 cell "Roto-Flo" design to facilitate even application of coating. Doctor blade assembly, adjustable on the run from gear to operator side included. Sunday drive similar to pan roll drive included to keep wet cylinders moving. Anti-sling ring assemblies with running adjustments at ends of cylinder transfer is sized larger for optimum material transfer.

   C. Magnetic plate cylinder, undercut to be discussed and determined by customer based upon type and style of plate to be used. Grid pattern for plate positioning included.

   D. Solid nickel plated impression cylinder.

2. Both plate and impression cylinders are adjustable on the fly from gear to operator side up to .005".

3. Stainless steel coater pan with double diaphragm recirculating pump/tank and flow control. Internal components designed to operate with U.V. coating material.

4. Motorized 360° circumferential register and ± ¼" motorized sidelay. Adjustments can be made at coater or at remote station pre-wired and provided by Scheffer. Location to be determined by customer.

10954 Shady Trail Dallas, Texas 75220 U.S.A. Telephone 214-353-9000 Telex 794028 Superblue dal Fax 214-357-5847

5. Tandler gear box with pneumatic clutch with on/off indicator.

6. Weight of each side coater - approximately 10,000 pounds.

7. On/Off pneumatic impression of plate and impression cylinders.

8. HSP requirements: Running 4 HSP.
Braking 10 HSP.

9. Two roll, chill roll stand with variable speed control. Rotary unions and piping included. Drive connection included.

10. Main support structure, drive connections and guarding. Four sided work platform, handrails and ladder and all necessary lead in/lead out idler rollers included. These idler rollers are multi-adjustable.

11. A. Six each curing heads linked to impression of press and automatically switch to standby mode when press is off impression for five minutes. If no further action is taken, then lamps automatically turn off; if the press is put back into impression, the lamps automatically return to full power.

Standard Control Unit contains all necessary switchgear and controls to provide individual lamp selection, full and reduced individual power switching, elapsed life meters, lamp indicators and emergency stop button.

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B. Special features include:
- Water Cooled Shutters
- Water Cooled Heat Sink Plate
- LED conductivity with diagnostic meter for deionized water system
- Heat exhaust on each UV lamp head

PRICE: $697,714 for complete two side application.

Option if installed on an existing press: Web severer and web break detectors $6,600.

SHIPPING INSTALLATION: Estimated at $20,000-$40,000. Start-up and training included.

SPARE PARTS: Recommendations: To be advised.

PRICING:

Prices include standard support structure, drive take-off from the press, guarding and crating.

Prices exclude any service charge for the installation, start-up, web-up platforms, ladders or handrails.

TERMS:

50% with order.
40% prior to shipment.
10% net thirty days from date of shipment.

SHIPMENT:

16-20 weeks.

The above shipping schedule is based upon existing backlogs. The actual shipping schedule date will be confirmed upon receipt of order and the down payment.

All equipment "ex-works" Merrillville, Indiana

PRINTING RESEARCH, INC.
TERMS OF PROPOSAL

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2. TERMS: 40% with purchase order and signed sales contract. 50% upon notification of readiness for shipment. Please note in order to release shipments, payment must be received. Balance 30 days after installation or 45 days from delivery, whichever is earlier. Please Note, when payment for a unit is due, it is payable without regard to the status of another unit which might be purchased at the same time.
3. WARRANTY CONDITIONS: 12 months on defective parts. EXCEPTION: UV Lamps - Guaranteed for 1000 operating hours. If failure occurs prior to 1000 hours of operation and after seller's inspection, proves to be due to manufacturing defects, 100% credit or a free replacement lamp will be provided.
4. CONDITIONS OF SALE: This quotation is subject to our "General Terms and Conditions for Coating and Drying Systems" on reverse of Summary. The company accepts no liability whatsoever for any loss of production, loss of profit or other loss to customer in connection with the equipment and/or its installation.
5. STANDARD DELIVERY: Is usually 12 - 16 weeks from receipt of official order and first stage payment. FOB Factory.
6. INSTALLATION AND TRAINING: $575.00 per day per man plus airfare. ($85 per hour if work day exceeds 8 hours).
7. ELECTRICAL STANDARD: 220/240, 460/480 volts, 3 or 4 wire (Delta or Wye) 60 hz. Existing electrical services must be specified on the purchase order.
   Notes: A. AB1 Air Blanket 1 Infrared Dryer BV BacVac Vacuum Transfer System standard electrical supply voltage 220/240 volts.
   B.ABII Air Blanket 11 Infrared Dryer standard electrical supply voltage 460/480 volts.
   C.HV High Velocity Hot Air Dryer standard electrical supply voltage 460/480 volts.
   Electrical service other than that quoted above may cause a delay and an additional charge for a transformer.
8. SERVICES TO BE PAID FOR AND PROVIDED BY CUSTOMER:

   GENERAL: Buyer agrees to prepare the press for installation, which may require relocating accessories including spray powder units, static bars, etc. Any relocation or modification of accessories will be the sole responsibility of the buyer. In the event Printing Research (P.R.I.) technicians are requested to modify or relocate any accessory, there will be an additional charge assessed to the buyer based on P.R.I.'s applicable hourly rate. P.R.I. will not warranty the performance of any accessories moved. When applicable, the buyer will supply clean, dry compressed air.

   HV/PBC/IR/UV/EZ/BV/VH

   The customer agrees to supply and pay for electricians, plumbers, engineering services and all materials required to install and interconnect (if necessary) the equipment being supplied by Printing Research, Inc. The electrical, plumbing, water, compressed air and refrigeration lines being supplied by the customer are to be connected to the equipment being installed. Printing Research, Inc. is responsible for activating the installed systems and will supply the labor necessary in that regard.
9. ADDITIONAL SPECIFIC SERVICES TO BE PROVIDED BY CUSTOMER:

   HV (High Velocity Hot Air Dryer)
   - Provide duct work and duct work extraction.
   - Provide raised walkplates to cover air supply and return lines lying on the floor.

   PBC (Plate Blanket Coater)
   - Provide coating and cleaning agent for testing and training.
   - 55 gallon barrel of hydraulic oil
   - Compressed air line up to 100 p.s.i.
   - Lifting gear to place coater on press
   - Provide relief plate to conduct plate coating test.

   UV (Water Cooled and 'Cold' UV)
   - Duct work and extraction, if required
   - Clean, dry compressed air adjacent to within 10 feet of the location of lamps; compressor must be able to deliver 0.5 c.f.m. per linear inch per lamp at up to 100 p.s.i.
   - The chilling system is not precharged with refrigerant due to the variability of installation requirements and is priced accordingly. The customer agrees to pay for all refrigerant needed to complete the installation.

   'COLD' UV
   - Provide 25-50 gallons of non-charcoal filtered steam distilled water.
   - It is necessary to arrange for a local service water purification contract.

   EZ (EZ Impression Cylinder Coater)
   - Compressed air line up to 100 p.s.i.
   - Provide coating and cleaning agent for testing and training.
   - Grippers and gripper bar assemblies need to be cleaned and tuned prior to installation.

   W000648

   VH (Vent-A-Hood)
   - Provide all duct work including penetrating and resealing the ceiling and/or roof and electrical interconnections to other equipment.
10. LOCAL INSPECTIONS, PERMITS OR CERTIFICATIONS:
    - Any additional local inspections, permits or certifications and the costs thereof are the sole responsibility of the buyer.

Prices are firm 60 days from the date of this proposal. 03/10/95

Subj: [Fwd: Perfecting2]
Date: 5/11/2000 11:24:31 AM Pacific Daylight Time
From: info@gatf.org (Graphic Arts Technical Foundation)
To: RayGATF@aol.com (Ray Prince)

Graphic Arts Technical Foundation
200 Deer Run Road
Sewickley, PA 15143-2600 (USA)
Phone: 412/741-6860, Fax: 412/741-2311
http://www.gatf.org ftp://ftp.gatf.org
email: info@gatf.org

Return-Path: <Mailer-Daemon@email-delivery.infotrac-custom.com>
Delivered-To: gatf@telerama.com
Received: (qmail 15802 invoked by uid 2282); 11 May 2000 18:20:29 -0000
Delivered-To: gatf-awatson@gatf.org
Received: (qmail 15285 invoked from network); 11 May 2000 18:19:10 -0000
Received: from balto.med.iacnet.com (198.112.169.9)
by speedbuggy.telerama.com with SMTP; 11 May 2000 18:19:07 -0000
Return-path: <>
Received: from 127.0.0.1 (LOCALHOST) by EPUB.IACNET.COM (PMDF V5.1-12 #U3379)
with SMTP id <01JP9Z140UQ69EFZZ5@EPUB.IACNET.COM> for awatson@gatf.org; Thu,
11 May 2000 14:18:02 EST
Date: 11-MAY-2000 14:18:02
From: Mailer-Daemon@email-delivery.infotrac-custom.com
Subject: Perfecting2
To: awatson@gatf.org
Message-id: <01JP9Z140YQO9EFZZ5@EPUB.IACNET.COM>
MIME-version: 1.0
Content-type: TEXT/PLAIN; CHARSET=US-ASCII
X-Mozilla-Status2: 00000000

Full content for this article includes photograph, table and illustration.

Source: Graphic Arts Monthly, March 1995 v67 n3 p42(5).

Title: Specialties rule; perfectors return.(includes related article on how printers wish future sheetfed presses to be)
Author: Debora Toth

Abstract: Perfecting presses are enjoying a comeback in the sheetfed industry as manufacturers undertake massive improvements, which had delighted many commercial shops as well as packaging printers. Due to the ease in switching perfecting presses from a straight to perfecting mode, as well as the enhanced quality the presses produce, printers are increasingly opting for them. Heidelberg official John Dowey notes that with the perfecting abilities of the new machines, he would classify them as specialty presses.

Subjects: Printing industry - Innovations
SIC code: 3555

Business Collection: 85U3773
Electronic Collection: A16726202
RN: A16726202

With all eyes looking toward Drupa '95 searching for new sheetfed press technology, printers are finding success with the wealth of new products and accessories already available. As we reported last year, automatic features are standard on most lines, as are coating units.

For those who need the capacity, additional press units of up to 10 colors are beginning to surface. The news is that perfecting presses--for two-sided printing in a single pass--are enjoying a rebirth in the sheetfed industry.

With vast improvements over their predecessors, there's been a renaissance in perfecting presses. Packaging printers as well as commercial shops are taking second looks and ordering these two-sided printing presses because it is easier to switch them from straight to perfecting mode and the quality has been dramatically increased for printing both sides of the sheet.

"I see this as the year of the specialty machine," says John Dowey, Heidelberg's director of Speedmaster marketing. "The six-color plus coater was standard. Now we are seeing more machines with perfecting abilities. In the past two to three years, it was not practical to print a four-color uncoated stock on two sides and produce commercial quality. Now it is possible."

Heidelberg will be demonstrating its SM 102-8-P four-over-four perfector press at Drupa in May. Worldwide, the firm has 70 installations of the SM 102-8-P with one U.S. installation (see page 83), one on order, and one installed in Canada.

"In the past, four-over-four perfectors were not popular in the U.S. because jobs were driven by designers asking for six and seven colors," comments Dowey. "In Japan they are very popular because most jobs are limited to the four process colors. Plus, manufacturers needed to solve the problem of getting the sheet through the press without marking and streaking. We've added air-cushion guide plates and improved cylinders to allow the machine to produce better quality."

Additional manufacturers are seeing similar interest. "We see a lot more interest in perfecting because the system is so radically different than years ago," says Bob McKinney, KBA-Planeta's vice president of marketing. "With the switch of a button, it's easy to convert. It's idiot proof."

KBA-Planeta has delivered an eight-color four-over-four press and has plans to deliver a 10-color five-over-five perfector press in the near future.

In addition to perfecting, printers continue to purchase sheetfed presses with more color units. Printers have jumped from a standard four-color press to a

six-color press and beyond. No longer is it unique to see seven- or eight-color presses with coating unit on the pressroom floor.

Says KBA-Planeta's McKinney, "We'll be delivering for the first time at the end of May a 40" Rapida with 10 colors. In March, we installed a 10-color 55" press at Rand Whitney/Delmar in Delmar, Del."

Coating continues to be a hot issue with printers as well as manufacturers. No longer is it a specialty unit added to a sheetfed press, but it is now a standard feature. Manufacturers agree that almost all sheetfed presses sold are equipped with a coater, even mid-size sheetfeds at 28".

"Coaters have come a long way in five years," remarks Walter Chmura, Komori America's sheetfed product manager. "We've developed a Type V system of clamps that assemble with our Komori pin system for quick makeready for spot coating."

While coating is popular, the process needed to meet both environmental concerns as well as productivity demands. "End users have driven the printing industry to make the packaging and printed products that we produce more recyclable and at the same time the process less damaging to the air and ground we live on," says Jeff Miller, vice president of marketing at MAN Roland.

He adds, "One of the first processes to be targeted was bronzing with its high volatility of application and health-sensitive particles. While it's fine for environmentalists to say that bronzing must go, designers and marketers still want the product appeal.

"Second, we face productivity demands for in-line, single-pass production. Cost-effective, just-in-time production demands require that a one-pass application be utilized and have the capability of doing everything, such as in-line UV over water-based primer. Or, applying conventional inks or inline gravure-quality metallic inks in a process with one pass utilizing no additional operators or time compared to a normal coater."

MAN Roland, joining with DuPont, Graphix North America, and Hostmann-Steinberg National Inks, developed a double-coating/acrylic-ink technology for the sheetfed market (see page 87).

While most customers here in North America think of a double-coater system as a process for inline UV over a water-based primer and conventional inks, MAN Roland feels that that is only the beginning of its potential.

"We're giving printers a way to differentiate themselves from their competition," says Tony Kenney, MAN Roland's senior product manager for sheetfed presses. "Now it's not unusual to see printers with eight, nine, or 10 units. American printers like anything bigger, faster, and better."

With printers finding competition as fierce as ever, they are depending on their sheetfed press to give them quick makeready, quality printing, minimum downtime, and a fast return on investment.

"Automation is going to continue to be the thrust," says KBA-Planeta's

McKinney. "All of the new automation features are geared toward reducing make-ready time. As a press manufacturer, we're trying to minimize every second of operation on the press. If the press is not printing a saleable sheet, we're going to be looking at reducing or eliminating that time."

Adds Heidelberg's Dowey, "Customers are still looking for machines to increase overall output. It's not that running speed needs to be higher. We've taken a look at unnecessary downtime and we've tried to streamline the process. We're looking at how the press is being used."

In this article, we're covering the mid-size and large-format machines. A second article dealing with small-format, two- to four-color presses will be published in September.

Advanced Graphic Equipment carries a full line of Hashimoto sheetfed presses. The Hashimoto Impulse 20, a 14 3/8 x 20 1/2" press, is available as a single-color machine or as a two-, four-, five-, and six-color press. A new model will be introduced soon.

The Hashimoto Impulse 26, a 20 x 26" press, is available in two-, four-, five-, and six-color configurations. The Hashimoto GR-652 is a 19 11/18 x 26" two-color in-line sheetfed press, which is also available in a perfecting model (GR-652P). Further automation to both models will be introduced this year and their names will change to the Hashimoto Impulse SA-652 and SA 652-P.

Akiyama is introducing two new devices, a plate puncher and automatic plate changer, for its existing machines. "What we've done," says John Sternickle, director of administration, "is design a simple-to-use automatic plate-changing device, in which the operator slides the plate into the holder and starts the cycle. All the plates can be loaded at once and locked in. It's much easier to use because of our design."

Akiyama will start marketing a new product line the end of 1995. A new perfecting press designed for book printers will be introduced. "It almost looks like a web press," says Sternickle. "The gripper edge never changes. The unique feature is that we can maintain print register on either side of the sheet plus back-to-back register. That's important for book printers, as well as magazine and brochure printers."

Consolidated International offers presses in three sizes: 23 x 30", 23 x 36" and 28 x 40" in single-color up to six-color with optional in-line coater. The packaging market continues to be ideal for the firm's larger presses. Recently, the Mexican Ministry of Defense installed a Consolidated six-color to print maps and other defense-related materials.

Heidelberg USA, responding to the continuing interest in coatings, introduced its Multiple Coating Technology on its new 40" Speedmaster CD models with six or more printing units. The system provides package, label, and commercial printers with a cost-effective way to produce high-gloss coatings, metallic finishes, and related special effects, while staying within the bounds of more stringent environmental regulations.

"This system has benefits for both the packaging and commercial printer," says Dewey, director of Speedmaster marketing. The packaging printer is able to

replace his off-line bronzing machine and use our system with a water-based metallic dispersion coating that looks like bronze but with no environmental hazards and less costly operation.

"Commercial printers have the ability to put a dull water-based primer over conventional inks, providing a stable base for a UV coating laid down in-line by the second coating trait. The benefit is a high-gloss appearance without the need for UV inks and the special handling they require."

The system consists of a coating tower, drying unit, second coating tower, and an extended delivery. A combination of infrared dryers, hot air knives, and UV curing systems are placed throughout the system to accommodate the needs of various coating materials.

The configuration allows in4ine application of two coatings in one pass. This provides more lustrous results and allows use of a virtually unlimited combination of UV and aqueous coating, varnishes, and water-based metallic finishes.

H.M. Graphics, Milwaukee, Wis. was the first U.S. printer to install Multiple Coating Technology. Williamson Printing, Dallas, has two systems on order. A third machine has been installed in Canada.

KBA-Planeta plans to introduce new enhancements to its Rapida 104 sheetfed press following the Drupa show. These new features include the Densitronic closed-loop, on-line densitometer system it developed in conjunction with Graphics Microsystems and the Logotronic management information system.

Komori America has introduced its Computerized Operator Press Control with Color Monitor. The KMS III integrated press control features job preset, PDC II closed4oop densitometric functions, remote camera, system set-up, makeready, job record, press monitor, troubleshooting, and work report.

With the increased popularity of perfecting, Komori is seeing interest in its Lithrone II 240 P perfecting press designed for very short-run work. The press can be fitted with fully automatic plate changing.

Manugraph Machinery Inc., a U.S. subsidiary of Manugraph Industries Ltd., is a year- old office and showroom located in Irving, Texas for the firm's Shiva press line. The Shiva sheetfed press came from Solna-Offset of Sweden, whose technology Manugraph purchased in 1990.

The Shiva sheetfed is available in 20 x 26" and 20 x 28". Manugraph offers MPC-IV for ink feed and segmented blade for ink zone control, and water feed control, as well as plate cylinder lateral and circumferential register control. An anti-static device on the feeder and delivery eliminates electricity build-up on jobs running at the highest speeds.

Ionized air is blown on the feeder pile to remove static electricity for trouble-free feeding. Camera-operated quick-acting plate damps are provided to minimize plate mounting time and reduce makeready.

In February 1995, a four-color Shiva 472HF was installed at P.C. Printing, Dallas. After June 1995, Manugraph will be offering waterless-ready piling

units in the U.S.

MAN Roland has been debuting its Drupa products throughout the U.S. during the past several months. The major focus for the firm is its new double-coating/acrylic :ink application system for the Roland 700. The system incorporates anilox technology via a closed chamber application system to apply the ink. The new anilox coating application was field tested at Busche in Dortmund, Germany for the past two years.

Two U.S. printers will be installing the Roland 700 press with double coaters after Drupa. They are Diamond Packaging, Rochester, N.Y., which will be installing a 706 and 707 with LTLV, and Royal Paperbox, Los Angeles, which will be installing a 706 with LTLV.

Mitsubishi, which has 30 of its 40" convertible perfector presses running worldwide, introduced a new 51" 5F BB blanket-to-blanket, seven-color press. The sheet travels through the drying units and is not turned over within the press.

"We've had good success with the press," says Randy Siver, Mitsubishi's sheetfed product manager. "We've installed one at a label printer and one at a carton printer. They are using the press to print coupons, recipes, and mail-in rebates on the inside of the box."

In addition, Mitsubishi has introduced a new 28" sheetfed press with coater. After the last unit, the press has a triple-size drum, giving the machine more room for access and more time for the sheet to dry thoroughly.

In August 1994, Mitsubishi announced that it would be offering a closed-loop inking system manufactured by Graphics Microsystems. The AutoSmart system is being demonstrated at Mitsubishi's showroom and has been available on its presses since October.

Omnitrade Industrial, at the Graph Expo '94 show in Philadelphia, introduced the 826P waterless 29" two-color press and the 856 29" five-color press. Both are rated at 12,000 iph. One 856 has been installed at Simmons & Co., a commercial printer in Memphis, Tenn.

In January, Sakurai demonstrated its new 258 EPIIZ 17 2/4 x 22 3/4" press to its U.S. dealers before introducing it this month at the Charlotte and Gutenberg regional trade shows. The new press features the Sakurai Interactive System, a digital touchscreen that allows the operator to interact with the press. The new press also features single-action feedboard adjustment.

Shinohara is introducing a number of new enhancements to its line of sheetfed presses. The Shinohara Register-Mark and Image,area Measuring System for high-pile multicolor Shinohara 66 press is designed to improve productivity in such areas as register mark alignment and ink key setup.

The Shinohara 66 IVP is an A2-size offset press featuring an automatic perfector changeover device, known as the SRIM-1 system, and the MIIC-Preset console, and the semi-automatic plate changing system.

The automatic changeover device sets up the machine from single-sided

four-color printing to double-sided two-over-two printing without using any tools.

The SRIM-1 system utilizes a laser-guided sensor system to locate the printing plate's register marks and scan the plate's image area for density measurements. These data are recorded on a floppy disk for input into the MIIC-Preset operation console.

The MIIC-Preset operation console measures the size thickness of the sheet of paper to be printed, and, through its software interface with the press, sets up the feeder, delivery, and printing pressure.

In addition, the MIIC-Preset automatically adjusts the radial, lateral, and diagonal register devices of the plate cylinder and also the ink key openings of each printing unit. Then, information, diagnostics, remote control of inking, dampening, and paper preset functions are accessed via a color touchscreen display monitor.

Shinohara has also introduced the Swing-2 Operation Console option for its Model 66II and 66IIP two-color offset presses.

The Swing-2, downsized from the conventional freestanding operation console, is installed at the end of the delivery unit of the press. It is capable of reducing the preprinting makeready time for running two-color and multicolor jobs on the press; using the previous two-color printing data for printing additional two colors on the two-color press; storing the data of frequently used control functions on a floppy disk; and using the preset functions for efficient ink feed adjustment.

Sheetfed Printers Compile a Wish List

What would you like to see on the sheetfed press of the future? That's the question we posed to several leading U.S. printers. Some of their answers surprised us; others had very specific achievable requests.

Many Benskin, co-owner of The Printer, Inc., Des Moines, Iowa, described four areas on his wish list: higher sheen coating, better in-line finishing, higher quality four-over-four perfecting, and an economical roll-to-sheet feeder.

"I'd like to see an in-line coating unit that provides a higher sheen," says Benskin. "Most customers like the sheen of UV coating. I'd like to get that type of sheen and replace acrylic coating. Secondly, I'd like an improved in-line finishing unit for scoring, perforating, and diecutting. We can do that in-line now but it's very time-consuming. No manufacturers have made a better unit in 30 years."

Benskin would also like to run a four-over-four perfector press without any limitations on stocks and no difference in quality for either side. Finally, he would like to install a roll-to-sheet feeder to save on paper cost and waste. "I'd like to take advantage of paper rolls," he says. "A roll is less costly and I could vary the sheet size and have less waste. The roll-to-sheet feeders available are like dinosaurs."

Paper is on Curtis Fong's mind as well.

As executive vice president of Fong & Fong, a commercial printer in Sacramento, Calif., he is seeking to detect paper dust and hickeys on paper. "With the quality of recycled paper, we find that there's lots of paper dust and foreign particles," he relates.

"When we're printing solids, we have to stop the press, clean the blanket, and remove the hickeys. I'd like to see an automatic device that would clean the blanket and remove the hickeys without stopping the press. I don't like to lose valuable press time."

Any type of automatic features that curtail press checks and lessen unproductive press time is on Fong's wish list. "We're installing a new press that has addressed these problems," says Fong. "We're not looking for a higher speed press; we wanted to change over our short-run jobs as quickly as possible."

Bob Murphy, president of Japs-Olson, Minneapolis, echoes the sentiments on makeready. "We always talk about speed, but what we want is a significant reduction in makeready times," he says. "Any assists manufacturers can give us, whether it be automatic plate hanging, getting units in register, or simplification of color control systems, would be a help. The manufacturers have already given us automatic or semi-automatic press settings."

Murphy's wish list also includes a 12-color press. "When we had our first eight-color, our clients filled it up. I can certainly foresee 10-color and if they had a 12-color, we'd buy it."

As for the future, Murphy is seeking a direct-to-plate press. "They are still in the developmental stage, but they are vastly improved. When it's available, it will be a great thing."

Manufacturers, take note. Let's see if you can make some of these wishes come true.

BY DEBORA TOTH

PROJECT EDITOR

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Received: from rly-za03.mx.aol.com (rly-za03.mail.aol.com [172.31.36.99]) by air-za03.mail.aol.com (v73.12) with ESMTP; Thu, 11 May 2000 14:24:31 -0400
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The sticking together of paper sheets due to ink setoff is called ***blocking***. Separation of blocked sheets can result in severe damage to one or both of them.

Ink Stability
Alternate term for ***screen stability***. See ***Screen Stability***.

Ink Stripe Method
Alternate term for ***picture method***, a test designed to evaluate the setting of an offset press's ***form rollers***. See ***Picture Method***.

Ink Trap
See ***Trap*** (second definition).

Inkwell
The blocked-out portion of a ***screen printing*** screen used as an ink ***fountain*** or reservoir. Also known simply as a ***well***.

Inlay
In ***binding and finishing***, a decoration added to a book cover by first cutting or ***blanking*** apertures into the cover. See also ***Onlay***.

In-Line
In typography, a style of type that has a chiseled effect, as if chipped out of stone. Although classic in appearance, their use in small doses is most effective, and they are often used in display type and are especially well-suited to dropping out from a dark background. At small sizes, however, the letters tend to fill in. Also referred to as ***engraved***.

In-line is also descriptive of any series of processes connected in a logical sequence, requiring little user intervention. For example, ***in-line presses*** have a variety of finishing devices—folders, diecutters, binders, etc.—attached in the proper sequence after the printing unit, so that a printed piece passes directly through all the printing and finishing stages without being taken off press and placed in another set of devices. (See ***Web Offset Lithography: In-Line Finishing***.) Some ***imagesetters*** also have in-line processors that develop the exposed film as it comes out of the device, eliminating the need to physically remove the film and re-insert it in a processor.

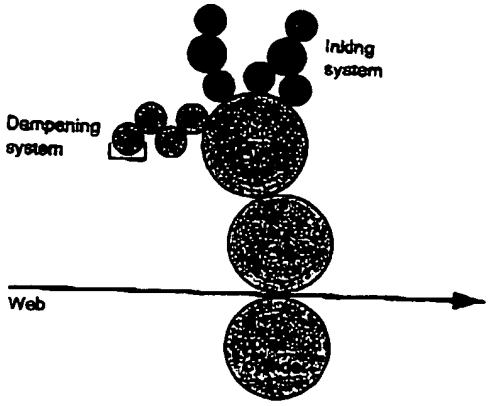
In-Line Covering
In ***perfect binding***, any binding system on which covers are attached on gathered and glued ***signatures*** in a single process.

In-Line Feed
In computing by means of paper tape, alternate term for ***center feed***. See ***Center Feed***.

In-Line Press
A printing press connected directly to any of several finishing operations, such as stamping, diecutting, sheeting, creasing, folding, etc., so that the printed ***substrate*** does not need to be demounted from the press and remounted on the finishing equipment.

The term ***in-line press*** also refers to a multicolor press in which all the ***color stations*** are mounted in a straight horizontal line, rather than in a circle around a ***common impression cylinder*** or in a vertical stack.

An in-line press is also known as a ***tail-end printer*** or a ***tailprinter***.



One color station of a multicolor in-line printing press.

In-Line Problem
A problem of ***process color*** printing characterized by one page on a printing press requiring different amounts of ink than a page printing below it.

Inorganic Color Pigments
Pigments used in ink manufacture derived from inorganic mineral sources (in contrast to ***organic color pigments***). There are several different varieties of inorganic pigments, classified primarily by their source.

The inorganic pigments listed below are classified and identified in the Society of Dyers and Colorists' Color Index. Each classification consists of two parts, corresponding to the two parts of the index: the first part identifies each pigment with a CI number, which accompanies a description, usage, and technical information. The second part lists each pigment by chemical composition and assigns each one a single number. Thus, Cadmium Yellow below is listed in Part 1 as *CI Pigment Yellow 37* and in Part 2 as *No. 77199*. These two sets of identifications accompany the individual entries on each separate pigment.

Chromes. Chromes are generally derived from various lead compounds, are fast-to-light (although some do darken on exposure to light, or on contact with sulfur gases), opaque, and heavy. They hold up well when mixed with solvent- and oil-based ***vehicles***, and they are generally acid and alkali resistant. ***Chrome Yellows*** and ***Chrome Reds*** (comprising several shades ranging from greenish to orange) are produced from lead chromate mixed with other lead compounds, such as lead sulfate. ***Chrome Green*** is

Contact Screen
A screen used in the production of ***halftones*** that is placed between and in direct contact with the original ***continuous-tone*** positive and the unexposed film. When light passes through the original and the screen, and strikes the film, a halftone ***negative*** will result.

Contended Access
In a ***local area network***, an access method for the network in which connected devices gain entry to the communications medium on a first-come, first-served basis. See also ***Explicit Access***.

Content
The actual information contained by a document, presentation, Web page, multimedia production, etc., independent of the structure, layout, and design.

Contention
In networking, competition or conflict between two or more nodes for access to the transmission medium, channel, or other system resources. In order to effectively handle the occurrence of ***collisions*** between messages transmitted simultaneously, some form of arbitration is required. See ***Carrier Sense Multiple Access/Collision Detection (CSMA/CD)***.

Content Search
In database systems, a type of ***search*** in which the system can read through all the text to match a user-defined character string.

Context-Sensitive Help
In computing, a feature of an application that allows the user to access instructions of ***help files*** specific to the mode or status he or she is in. A context-sensitive help can also help resolve a particular error condition.

Context Switching
In computing, the ability to switch from program to program without having to quit one and launch another. Unlike true ***multitasking***, however, all additional programs loaded in memory must halt when a new program is switched to. See ***multitasking***.

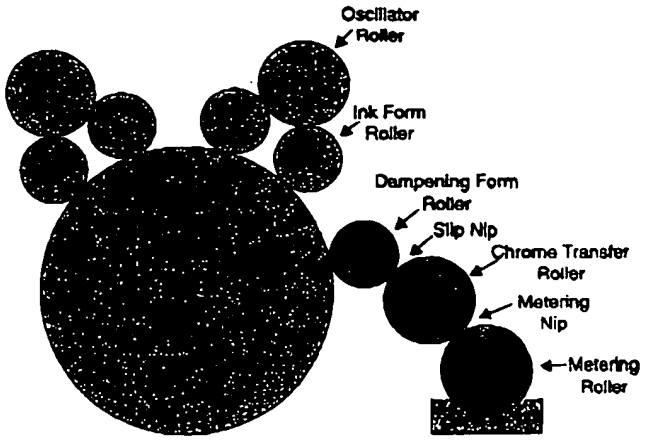
In *CAD* graphics, *context switching* refers to the ability to control the visibility of layers on the display by switching between or among groups that share similar attributes.

Continuity
In video, television, film, or multimedia production, the maintaining of consistency from scene to scene, shot to shot, or screen to screen. A common example in cinematic use is the water level of a glass that changes from one shot to another within the same scene. This is known as a continuity. In multimedia, a button that is active in one screen must be active in the next.

Continuous Code
A type of ***bar code*** that lacks gaps between the characters comprising the code.

Continuous Envelopes
A set of envelopes produced as a long sheet, each of which is separated by perforations, so they can be pin-fed through a computer printer or other device.

Continuous-Flow Dampening System
A type of ***dampening system*** used in offset lithographic presses that utilizes a ***metering roller*** in constant contact with both the ***water fountain*** and a ***transfer roller***, which in turn is in constant contact with the ***form rollers*** that contact the plate. The advantage that continuous-flow systems have over the conventional ***intermittent-flow dampening system*** is that periodic surges of ***fountain solution*** are eliminated, and the whole system itself is more instantaneously responsive to adjustments in the amount of fountain solution flowing from the fountain. There are several varieties of continuous-flow systems: ***inker-feed systems***, ***plate-feed systems***, and combinations of both. (See ***Dampening System***.)



One configuration of continuous-flow dampening system.

Continuous Forms
Any blank or printed forms produced as a long sheet, separated by perforations, as opposed to forms cut into separate sheets.

Continuous Forms Stacker
An output or delivery unit that refolds and stacks a set of ***continuous forms*** after printing.

Continuous Leading
In typesetting, the continuous feeding of photographic material in a phototypesetter.

Continuous Process
In any manufacturing process, the ongoing production of a steady stream of material, in contrast to a ***batch process***.

the pages together, while a layer of a high-viscosity hot-melt adhesive is used to adhere the book block to the cover. Thicker publications, such as metropolitan telephone books or heavy catalogs, use three different types of adhesives.

Most of the adhesives used in perfect binding are hot-melt adhesives, a mixture of ***resins*** and ***polymers*** which become fluid at high temperatures and dry by cooling back to a solid state. Most hot-melts achieve their best combination of flow characteristics and bonding strength when applied at a temperature between 350–400°F. In addition to hot-melts, ***polyvinyl acetate***-based adhesives are often used. These do not need to be heated in order to be applied, but require special ovens to dry. They do, however, provide a more flexible spine than do traditional hot-melt adhesives. A third type of adhesive increasing in popularity is a polyurethane reactivate (PUR) adhesive. PUR-bound materials tend to lie flatter than material bound using other adhesives, PUR bindings tend to dry faster, and tend to be more durable. PUR, however, is more expensive and emits toxic vapors when heated.

Cover Feeder. After applying the adhesive, the cover is applied to the book block. A feeding mechanism scores the cover where it is to be folded around the book block, and the cover is pressed onto the backbone. ***Nippers*** pinch the cover around the spine, while clamps press the front, back, and sides securely around the block. The bound book is then dropped onto a conveyor belt where it is sent for trimming.

Trimmer. Once the adhesive is cool, the tops of the folded signatures of the book block need to be split, and trimming around the other sides may also be necessary. Often, ***three-knife trimmers***—located in-line or off-line—can trim all three unbound sides at once. In some cases, binding is done ***two-up***, where two books are bound together as one unit. In this case, the two individual books must be split apart prior to trimming. Some books can be trimmed ***two-on***, or one book on top of another. This is more effective when used with thinner books.

Counter-stacker. The final step in the perfect binding process is the ***counter-stacker***, a device which counts the number of individual units coming off the finishing line and stacks them for shipping.

Perfect binding equipment can bind up to 18,000 units an hour, with trimming stages slowing the process down somewhat; three-knife trimmers operate only up to about 6,000 units per hour. Any overflow can be diverted directly to stackers and trimmed off-line.

Despite the name of the process, perfect binding is not truly "perfect." Inflexible adhesives can result in books not lying flat, and the spines of paperback books can often be distorted almost beyond recognition, primarily by sloppy readers. The Swedish textbook manufacturer Otava has invented the "Otabind process" of perfect binding which uses two applications of a quick-drying adhesive along the spine. The binding is reinforced with additional layers of hot-melt adhesive along both sides of the book block, which are topped with crepe paper or cloth, followed by another layer of adhesive to secure the cover. The cover, in turn, has been scored several times, which in effect creates "hinges" which make the spine very flexible.

Perfect bind is also used occasionally in conjunction with case binding, where an adhesive is applied to the spine of a book block after sewing. Many book publishers use the same book blocks for hardcovers and their corresponding trade paperbacks. If there is a significant number of hardcover books left in the warehouse, the trade paperback is produced by stripping off the cloth case and perfect binding a paperback cover onto the book blocks, rather than printing a whole new edition. This is an economical way of producing paperback versions of hardcovers which have not sold as well as had been anticipated, the only drawback being is that corrections or updates to the text cannot be made.

(See ***Binding and Finishing***.)

Perfect Casebinding

In ***binding and finishing***, a combination of two separate types of binding—***perfect binding*** and ***case binding***—in which ***signatures*** are bound together with adhesive prior to attaching the case. Perfect casebinding is performed to eliminate the ***thread sewing*** characteristic of traditional case binding.

Perfecting

The printing of the reverse side of an already-printed sheet, especially when it is performed on a ***perfecting press***, utilizing either special ***transfer cylinders*** or printing units to print on two sides during one pass through the press. See ***Perfecting Press***. Printing on the reverse side of a printed sheet by means of successive passes through a press is commonly referred to as ***backing up***.

Perfecting Press

A printing press, especially one used in ***offset lithography***, that allows printing on both sides of a sheet of paper in one pass through the press. There are two basic configurations of offset perfecting presses. In a ***convertible perfector***, special ***transfer cylinders*** between successive printing units flip the paper over after it leaves the first ***impression cylinder***, allowing the second unit to print on the reverse side of the sheet. Such presses have the advantage of being able to be used for single-side multicolor printing, simply by adjusting the transfer cylinders to keep them from flipping the sheet over. A second type of perfecting press, used primarily in ***web offset lithography***, is called a ***blanket-to-blanket press***, and utilizes one printing unit in which the impression cylinder is replaced by a second ***blanket cylinder*** directly below the first. As the sheet or paper web passes between the two blankets, images are printed on both sides at the same time. (See also ***Offset Lithography***.)

THE GATF GLOSSARY OF GRAPHIC ARTS TERMS

GATF TECHNICAL FOUNDATION

Library of Congress Catalog Card Number: 94-76582
International Standard Book Number: 0-88362-172-X

Printed in the United States of America

Second Edition
Order No. 1305

A catalog of GATF text and reference books, Learning Modules, audiovisuals, and videotapes may be obtained on request from the Graphic Arts Technical Foundation at the address given at the bottom of the title page.

The first edition of this project was funded, in part, by a grant from the
Graphic Arts Education and Research Foundation.

Product brand names are mentioned in this book as a matter of information only and does not imply endorsement by the Graphic Arts Technical Foundation.

Glossary of Graphic Arts Terms

The rendition of tones on a positive are similar to those on the original. **4, 65**

contact printing. Producing a photographic print by exposing sensitized paper, film, or printing plates held against a negative or positive in a vacuum frame. The resulting contact print is a same-size negative or positive reproduction. **4, 65**

Contact printing frame

contact printing frame. A device used in contact printing to hold a negative against photographic paper or film with vacuum pressure. Light from an external source exposes the paper or film. **4, 65**

contact screen. A photographic film with a dot structure of varying density that is placed in contact with unexposed film to convert a continuous-tone image into patterns of small, solid-tone dots that vary in size (a halftone). See also: *halftone screen.* **4, 65**

contaminant. Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil. **77**

continuous discharge. A routine release into the environment that occurs without interruption, except for infrequent shutdowns for maintenance, process changes, etc. **77**

continuous feeder. A paper-supply mechanism that can be reloaded without stopping the press. **60**

continuous form. A series of connected sheets that feed sequentially through a printing device. **25**

continuous improvement. Process of business management based on data tied to customer satisfaction. See also: *total quality management.* **74**

continuous jet. A nonimpact printing technology in which a steady stream of ink is forced at high pressure through a small nozzle and dispersed as small droplets through a charging field. The stream of charged droplets then passes between high-voltage deflection plates. Because the plate voltage varies, only selectively charged droplets form the desired shape or pattern on the substrate. Excess droplets are diverted and recirculated. **25**

continuous pulping. Using uninterrupted pressure from a continuous digester to extract water from wood during the papermaking process. Alternative term: *batch digester.* **72**

continuous tone. A photographic image or art (such as a wash drawing) that has not been screened. It has infinite tone gradations between the lightest highlights and the deepest shadows. **63**

continuous-tone gray scale. A scale of uniform tones, from white to black or transparent to opaque, without a visible texture or dot formation. **30**

continuous-tone negative. An inverse impression of tones from the original reproduced on sensitized film without using a halftone contact screen. **30**

continuous-tone proof. An illustration without halftone dots, which is produced on a computer screen at view file or fine file resolutions with the red, green, blue (RGB) color parameters. **3**

contour. A typographic form in which type is set to create "shapes" other than blocks. Line lengths are individually calculated to ensure that the type fills a prescribed image or nonimage area. **35**

contouring. A printed image defect in which shade and density variations are in evidence as visible steps. **40**

contrast. The relationship or degree of tonal gradation between the lightest and darkest (highlight and shadow) areas in an original, reproduction, or negative. **30**

contrast grade. A rating of 0–5 that designates the tonal differences among various photographic papers. A paper with a grade of 0 has the lowest contrast, and one with a grade of 5 the highest. Grade 0 paper is used with high-contrast negatives, and grade 5 paper is used with low-contrast negatives. **24**

Glossary of Graphic Arts Terms

ink drum. A metal roller in the ink distribution system of a press that moves back and forth sideways to help mix the ink and reduce ghosting. Alternative terms: *oscillator; vibrator.* **48**

ink dry back. An optical loss of density and color strength that may occur while an ink is setting. To achieve the proper dry density, the ink is printed with a wet density slightly higher than the projected dry density. **37, 71**

ink feed. The amount of ink delivered to the ink form rollers. **37, 71**

ink film graininess. A rough or sandpaper-like appearance in what should be a smooth, continuous ink film on the press sheet. **37, 71**

ink film thickness. The depth of a wet ink film in the ink train or on the ink form rollers. **37**

ink form roller. See *form roller.* **60**

ink form roller setting. The correct pressure adjustment of an ink form roller against the oscillator and the plate. **37**

ink fountain. The trough on a printing press that holds the ink supply to be transferred to the inking system. The operator controls ink volume from adjustment screws or keys on the fountain or from a remote console. **48**

ink setting. (1) The increase in viscosity or body (resistance to flow) that occurs immediately after the ink is printed. (2) An adjustment the press operator makes to the inking system to control ink volume. **71**

ink strength. The coloring power of an ink. **71**

ink tack. The sticky or adhesive quality of an ink. See also: *tack.* **37, 71**

ink transfer. The amount of ink supplied to a substrate, expressed as a percentage of the total ink available. **71**

ink transparency. The degree to which light passes through an ink film without being absorbed or appreciably scattered. **37, 71**

Ink trapping. See *trapping.* **71**

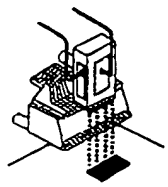
ink vehicle. A complex liquid mixture in which pigment particles are dispersed. **60**

ink-dot scum. On aluminum plates, oxidation characterized by scattered pits that print sharp, dense dots, or ink material trapped in the grain. **71**

inker-feed dampening system. An integrated, continuous-flow dampening system that delivers the dampening solution to the first ink form roller. **60**

inking system. The section of a lithographic press that controls the distribution of ink to the plate. Alternative term: *inking mechanism.* **38**

ink-jet printing. A nonimpact printing process in which a stream of electrostatically charged microscopic ink droplets are projected onto a substrate at a high velocity from a pressurized system. The electrically controlled flow of droplets is either intermittent or continuous. **40**



Ink-jet printing

inkometer. An instrument that measures the tack and length of printing inks in numerical terms. **60, 63**

ink/water balance. In lithography, the appropriate amounts of ink and water required to ink the image areas of the plate and keep the nonimage areas clean. **36, 60, 63**

in-line converting. Converting done directly from the last printing station or drying unit into the converting machinery in one continuous operation. **20**

in-line finishing. Manufacturing operations such as numbering, addressing, sorting, folding, diecutting, and converting that are performed as part of a continuous operation right after the printing section on a press or on a single piece of equipment as part of the binding process. **20**

input. (1) To enter data or program instructions into a computer system. (2) The data or instructions themselves. **40**

Glossary of Graphic Arts Terms

Pareto principle. First defined in 1950, it suggests that 80% of most problems come from 20% of the possible causes. **74**

parity bit. An additional data bit that is used to check the correctness of the associated group of data bits. The parity bit is included, or omitted, from the data bits to produce the necessary odd or even total number of bits. Alternative term: *parity check.* **48**

paste drier. A highly viscous drier prepared by grinding the inorganic salts of manganese or other metals in linseed oil varnishes. **36**

pastel drawing. An illustration made with chalk, clay, charcoal, and/or pigments in a wax base. **30**

pastels. Soft or light colors usually in the highlight to midtone range. **8**

paster. (1) A device used to apply a fine line of paste on either or both sides of the web to produce finished booklets directly from the folder without saddle stitching. The paste is applied from a stationary nozzle as the web passes underneath it. (2) An eight-, twelve-, or sixteen-page booklet that is pasted instead of saddle-stitched together. (3) An automatic web splicer on a press. (4) The rejected web with a splice in it. **48, 68**

pasteup. The camera-ready assembly of type and line art (drawings), e.g., line copy prepared manually or electronically for photographic reproduction. Alternative terms: *mechanical; photomechanical.* **36**

patent base. Sectional metal blocks used as supports to hold letterpress printing plates in position on the press or to hold metal type in position on the chase. Alternative term: *patent block.* **20**

patrices. Metal dies of raised characters used to produce the character molds, which are then used to make metal type. **20**

peaking. Electronic edge enhancement produced by exaggerating the density differences at tonal boundaries to create the visual effect of increased image sharpness. See also: *unsharp masking.* **10**

pebbling. Embossing paper after it has been printed to give it a rippled effect. **48**

peel, automatic. A spring or cam device on larger automatic screen-printing presses that lifts the screen behind the moving squeegee. **26**

PEL. Another term for picture element. (1) In computer graphics, the smallest element of a display surface that can be independently assigned color and intensity. (2) The area of finest detail that can be reproduced effectively on a recording medium. See also: *pixel.* (3) See *permissible exposure limit.* **25**

pen plotter. A printing device using liquid ink dispensed from individual color cartridges, usually to form line and text images. **40**

percent grayness. Densitometric relative measure of achromatic density in a color as compared to the major filter density. See also: *grayness.* **6**

perf. See *perforating.*

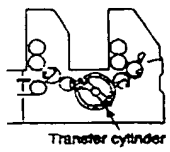
perf strip. A band that is bound into saddle-stitched publications so that single-leaf inserts can be tipped in. If perf strips were not used, publications could only accept four-page inserts. Alternative term: *hangers.* **64**

perfect binding. The use of glue to hold the pages of a book or magazine together. Alternative term: *adhesive binding.* **48**

perfecting. Printing both sides of a sheet in the same pass through the press. **65**

perfecting press. A printing press that prints both sides of a sheet in a single pass through the press. Alternative term: *perfector.* **48**

perfector, convertible. A sheetfed press with a special transfer cylinder in the gripper system that allows the sheet to tumble end for end between printing units so that the other side of the sheet is printed by the second unit. On a two-unit convertible perfector, two colors can be printed on one side of the sheet, or one color



Perfector, convertible

Glossary of Graphic Arts Terms

can be printed on each side in a single pass through the press. **60**

perforating. Punching a row of small holes or incisions into or through a sheet of paper to permit part of it to be detached; to guide in folding; to allow air to escape from signatures; or to prevent wrinkling when folding heavy papers. A perforation may be indicated by a series of printed lines, or it may be *blind;* in other words, scored and creased without a printed indication on the cutline. Alternative term: *perf.* **68**

peripheral equipment. The various input and output devices, storage units, and other hardware that form a computerized system, other than the computer itself. Any auxiliary equipment. **40**

permanence. The ability of a paper to resist change in one or more of its properties during storage and with aging. **72**

permissible exposure limit (PEL). A regulation established by OSHA that states the maximum amount of time employees can be exposed to airborne contaminants. **26**

pH. The degree of acidity or alkalinity of a substance or solution measured on a scale of 0 to 14, with 7 as the neutral point. Numerous instruments are available for measuring pH value. **72**

Photo CD™. A format developed by Kodak for storing compressed still photographic images on CD-ROM disks. The digital photographs can be viewed on home players or can be retrieved with computer-based systems. See also: *CD-ROM.* **84**

photocell. A device that converts the energy in a light ray into electrical energy. **8**

photocombining. See *composite; gang; montage.* **65**

photocomposing machine. See *multi-imaging camera; step-and-repeat.* **65**

photocomposition. See *phototypesetting.* **27**

photoconductive. A material that carries electricity in the light and serves as an electrical insulator in the dark. **40**

photoconductor. (1) A medium for transferring images to paper. (2) An insulator that conducts electricity when it is illuminated with electromagnetic radiation with wavelengths shorter than a critical value. **25**

photocopy. A reproduction of an original formed by fused toner particles in a nonimpact process such as xerography. **48**

photodiode. A small solid-state device capable of detecting the presence or absence of light. It is the principal component of light detection and measuring instruments. **48**

photoelectric. Process of converting light energy into electrical energy. **36**

photoelectric cell. Any light-detecting or measuring element that produces an electrical signal relative to the light stimulus striking the element. Alternative term: *photocell.* **36**

photoengraving. The process of making printing plates by exposing line and halftone negatives onto a sensitized metal, converting the image into an acid resist, and etching the image areas in relief as required for letterpress printing. **20**

photographic proofs. Blue, brown, or silver prints made from negatives or positives and used to check layout and imposition before plates are produced. **36**

photography. The use of actinic light to produce a latent or permanent image on sensitized materials. **48**

photography, digital. See *camera, digital.*

photogravure. Using photographic methods in the production of plates or cylinders for gravure, or intaglio, printing. **66**

photoimposition. Exposing a single image in a succession of specific positions on a plate or film, either by manually moving the pin-registered image or by

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NUMBER OF PAGES 2 INCLUDING COVER SHEET.

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SERIAL NO.: 09/315,796 – Reissue
INVENTOR(S) : Davis, Bill L. et al.
FILING DATE: 5/20/99
ATTORNEY'S DOCKET # WILL-2501

TITLE OF INVENTION: COMBINED LITHOGRAPHIC/FLEXOGRAPHIC PRINTING APPARATUS AND PROCESS

Per our conversation on July 5, 2000 12:30 EST – Your request for an additional day, due to the incorrect date on the mailing envelope is approved.

Spoke with Robert Falk. **Faxing this note to 972-716-9532**

Respectfully Submitted,

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